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JOURNAL OF A TOUR
THROUGH THE
PEGU & MARTABAN PROVINCES

IN THE SUITE OF
DRS. McCLELLAND & BRANDIS,
SUCCESSIVELY SUPERINTENDENTS OF FORESTS, PEGU.

BY
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PREFACE

The title page of this work sufficiently indicates the opportunities of travel and observation which the author has had through the country he describes. Duty was his primary object, but he found, nevertheless, sufficient time to combine curiosity and amusement with his ordinary business avocations. The first year's remarks were very kindly submitted to Government by his immediate superior Dr. McClelland, who did him the high honor of thinking them sufficiently interesting to be printed with that gentleman's "Papers relating to the Teak Forests of Pegu" among their selections from the records of the Government of India (Foreign Department) No. IX, and which to preserve a connexion, are here reprinted together with the diary.

He subsequently made another tour in the suite of the same gentleman, with a little more experience and a thorough knowledge of the objects for which the journey was undertaken, and, on this occasion, he was determined to pass by nothing that he found worthy of note or observation, but the journal was unfortunately, through negligence, put into a leaky boat on the occurrence of a fire at Rangoon in December 1855, and became so saturated with water, that it was impossible to make any thing of it. In lieu of this, however, the author publishes some memoranda made from a separate note book, which was preserved from the general destruction, and which, though not so full, will, he trusts, prove satisfactory.

His third and last journal is fuller in its details than the others, consequent upon his comparatively matured experience, more labored study of Nature, and the impetus afforded by the flattering testimonials of his superior. The journey was undertaken in the suite of Dr. Brandis, (who probably has kept a journal of his own,) who has been pleased to take an Official notice of the author as follows.—

" Since Mr. Robert Abreu has served under me, I have found
" his familiarity with the language of the greatest service. This,
" together with his knowledge of the country and his acquaintance
" with the native officers of the Forest Department throughout the
" Province, have rendered him a valuable servant to the Department.
" Besides this, his knowledge of the forest trees of Burmah and other
" productions of the country, to which he has always paid praise-
" worthy attention, is considerable."

With regard to his services under Dr. McClelland, the author submits the following testimonial.—

“I have known Mr. Robert Abrou since his boyhood, when a Student in Saint Xavier's College in Calcutta, where I knew him to have secured the high opinion of Professors and Teachers both for his attainments and good conduct.

“I afterwards was fortunate enough to meet with him in Pegu, where, in addition to his good sense and high moral character and education, together with his thorough knowledge of the Burmese, their character and their language, he was of the greatest service to me in my office of Superintendent of Forests, accompanied me in all my journeys, and is thoroughly acquainted with all my views regarding Forest management.

“It is due to him to say, that I have met with few men in any situation of life for whom I have more respect, or in whose prosperity I feel greater interest.”

The Province had never been visited by any European before Dr. McClelland was deputed to explore it; and as a hitherto unknown country, the writer hopes that he has not omitted any thing calculated to afford interesting information to the reader. No doubt, there are other writers who may impart more extended information for the valuable purposes of Government and for the benefit of literature, and any work so undertaken is worthy of encouragement and deserves serious consideration.

It has been the object of the writer to be minute in his description of valuable timber trees besides teak and other forest productions, and he has not overlooked the claims to attention in the Zoological department of the Province.

In conclusion, the author is compelled to call for quarter from the critic. This is his first appearance in the character of an author, and in his anxiety to render the work free from errors, he finds on conning over it as now finished, that they are numerous. He therefore begs in the language of the poet,

“To what small merit we possess be kind,
And to our faults, if possible, be blind.”

CORRIGENDA.

- For *glossy* glades, *read, grassy*, 5th para, last but one line, page 4.
- “ we *seen* hundreds, *read, we saw* &c., 15th para, 2d line, page 6.
- “ hills which *are* visible, *read, hills which were*, 4th line, page 7.
- “ accompanied *with* one, *read, accompanied by* &c., 22nd line, last but one line, page 7.
- “ 2100 *undersigned* trees, *read, 2100 undersized* trees, 34th para, 5th last line, page 9.
- “ situated three *quartes*, *read, situated three quarters*, 2nd para, 5th line, page 17.
- “ natives have very appropriately given the appellation, *read, natives have very appropriately given to it* &c. 2nd para, 12th line, page 17.
- “ through *glossy* glades, *read, through grassy* glades; 1st para, 2nd last line, page 27.
- “ *Streulia alata*, *read, Steroidia alata*, last but one line page 30.
- “ over hilly and *mountain* tracts, *read, over mountainous* tracts &c., 3rd para, 4th line, page 31.
- “ *Acanthus illicifolius*, *read, Acanthus illicifolus* 19th line, page 33.
- “ of a *dear* hunter's hut, *read, of a deer* hunter's hut, 29th line, page 48.
- “ sweeping lines of the *ch uds upwards*, *read, sweeping lines of the uplands*, 30th line, page 56.
- “ the *present* are, *read the following* are, 1st para, 4th line, page 58.
- “ which *has dead*, *read, which had died*, 18th and 19th line, page 60.
- “ foreign or *external* wars, *read foreign or internal* wars, 10th line, page 63.
- “ *Accacia scrissa*, *read, Accacia scrissa*, 12th line, page 69.
- “ *Pentaptera glabia*, *read Pentaptera alabra*, last but one line page 69.
- “ *Melmorrhæa usitata*, *read, Melunorrhæa usitata*, ditto, ditto. *Eugenia*, *read, Eugenia*, last line, page 69.
- “ *is* his monopoly, *read, was* his monopoly, last para, 2nd line, page 71.
- “ these observations *which* are, *read those* observations *are*, 2nd para, 1st line, page 73.
- “ excited our wonder *is*, *read, excited our wonder was*, 2nd para, 2nd line, page 75.
- “ which *have* been created are, *read which has* been created, *is, &c.* 5th para, page 76.
- “ probability *is*, *read, probability was*, 2nd para, last line, page 79.

- " long been insecure *from* the &c., *read*, long been insecure *by* the &c., last para, 3rd last line, page 86.
- " and *is* covered, *read*, and *'covered*, 23rd line, page 107.
- " *Irosera indica*, *read*, *Drosera indica*, last line, page 123.
- " a mountain *hardy* exceeding, *read*, *hardly* exceeding, 2nd line, page 139.
- " they *are* clothed, *read*, they *were* clothed, para 3, last line but one, page 151.
- " It exudes as I have mentioned, *read*, it exudes gum as &c. last para, last line, page 152.
- " it is *similar* used as the preceding, *read*, it is *similarly* &c. 5th para, 1st line, page 156.
- " The *zayat* has a dependent and *contiguous* &c. *read*, the *zayat* has a dependant and *contiguous* &c. 2nd para, 1st line, page 157.
- " This wood possesses all the good qualities and *homogenous* &c. *read*, This wood possesses all the good qualities and *homogenous* &c., 3rd para, 2nd line, page 176.
- " the nature and properties of this tree *is* little known, *read*, the nature and properties of this tree *are* little known, para, 1st 2nd line, page 182.
- " The fibre of it is strong and affords a *course* cordage, *read*, The fibre of it is strong and affords a *coarse* cordage, 5th para, last line, page 190.
- " this is cultivated in small *quantity*, *read*, this is cultivated in small *quantities*, 2nd para, 1st line, page 192.
- The Burmese are *extensively* fond &c., *read*, *excessively* fond &c., 4th para, 3rd line, page 200
- " after "*which* at a distance," add, "*while in the water*" 22nd line, page 224.
- Instead of the conjunction *and*, 2nd line, page 237, insert the relative pronoun *which*.

GENERAL OBSERVATIONS ON THE LHINE, PHOUN- GYEE, AND ZAMAYEE TEAK FORESTS.

The Pegu Province was on the 20th December 1852, proclaimed as annexed to the British territories. It had been a principal mart for teak, and indeed, it constituted the most important article of trade ever since the foundation of Rangoon by Alompra in the year 1775.

The Government, desirous of being made acquainted with the resources and physical characteristics of the teak Forests, as well as to make those lying on the three streams (Lhine, Phoungyee, and Zamayee, disemboguing themselves into the Rangoon River) available for this year, determined on the actual examination of them. Dr. McClelland, the Officiating Superintendent of Forests, was therefore requested by the Commissioner of Pegu and Governor General's Agent, in a letter No. 45 dated 30th November 1853 (indicating the principal points to which his attention was to be directed during the travelling season) to proceed into them. I had the pleasure of accompanying him in this tour.

In obedience to the abovementioned instructions, we accordingly started to the Lhine Forests by land on the 2nd January 1854, and reached on the 8th instant Yendikequin village, situated on the margin of the Teak localities. I shall here insert the following extract from my Journal, noted during my march of several days.

2nd January 1854.—Left Rangoon at day-break for the Forests accompanied with thirteen men of M. N. I., and an equal number of the Pegu Light Infantry Battalion; the direction of our route was due E. for a couple of miles, through a jungle of wood-oil trees, (already tapped) and bamboos. Pursuing this direction, we found that the route was a divergent one. In a course of quarter of a mile, we found that the road to Ko Khine village, consisting of forty houses, and having an interstice of fertile open ground partially cultivated with vegetables, diverged to N. E., continuing in this direction the contrast from the village we just passed with that of Kambet and Yaigoo was striking, for there was nothing but grass jungle growing over a paddy land. A mile from this place we encamped at Zwayzone. The Phoungyee whose Kyoung lies proximate to our place of encampment, was a very obliging religious man, supplying us with such necessaries as he could afford; in return I presented him with twenty-five cigars which were thankfully received.

3rd January.—Started at day-break. Our general route N. N. E. We passed by Thadajee village containing 40 houses, situated about a mile or a mile and a half from Zwayzone. Proceeding in this direction, the Creeks Thadajee and Thadagalay intersected our way, the former situated three quarters of a mile from the latter, when we were over the margin of a wide paddy plain for a mile, which is rapidly falling into a jungle. We met Captain Williams and his assistants surveying in this place about 3 miles from their Camp in Toun-nyc village which we passed. Leaving this and travelling for three miles, we came to Ananbeen, a village of thirty houses, and proceeded on, when after half a mile's journey we came to a village abounding with mangoe trees,—the Natives have very appropriately given it the appellation of Tharet-kone. The inhabitants of this place are apparently in indigent circumstances. They have not cultivated a single acre of land ever since the Province came into our hands. On inquiry, I find that it is attributable to the loss of all their buffaloes by disease and not from an aversion to labour.

Toung-thoozob (one and-a-half mile from the above place and containing twenty-five houses) on the contrary, is in a rapidly progressive state. I must certainly say the inhabitants are very industrious, and the fact of their land being covered with Paddy, proves such to be the case.

There is another Village called Sanjee lying close to Toung-thoozoo. We were warned by the men of this village not to encamp at Kalouk Koondine lying three miles from this place, whither we directed our way on account of the peculiar situation of the village, having jungles on all sides infested with wild elephants and tigers,—the latter are so ferocious and sanguinary that they do not scruple to carry away men. We came to the village about 2 o'clock P. M.

4th January.—Left Kalouk Koondine at day break.—Throughout the whole of this day's march of twelve miles, our route was a mere cart-track, lying through a thick wood which impeded the progress of our carts. Couple of miles before we reached Touk Kyen, where we encamped—the road however became comparatively level.

I observed during this day's movement foot-marks of wild elephants, and if we are to judge from them, there must undoubtedly be a good number of these animals.

The Village of Touk-Kyen may be said to be celebrated for its extensive plain. Goung Kowike related to us, that previous to the late war the whole of it was covered with rice cultivation. In order to bring it again to its former arable condition, he has secured a good num-

ber of buffaloes, and expects to reap a rich harvest in a year or two hence.

5th January.—Started : the whole of this day's march of 12 miles lay through dense trees, grass jungle, and marshy ground ; through the former the road for five or six miles was obstructed with felled trees at interstices of every fifty or hundred yards ; we were therefore necessitated to remove those capable of being shifted or contrived a new road as we considered feasible or expedient ; through the latter, it was not only troublesome, but the hackreewallahs complained that it was too much for the bullocks.

The course lay in a N. E. direction, but after a few hours' circuitous travelling, the route became devious, some times east and some times west.

In this way for 2½ miles we were led to Bwetjee village, and about 12 o'clock A. M., arrived at Kyet Phoo-gan, a despicable village containing twenty houses. The wretched condition of the place may be imputed to the want of industrious habits in the people as, although in the midst of an arable plain, agriculture is entirely abandoned.

Three miles from this we passed another village called Tai-thoe, consisting of twenty houses. The inhabitants have every advantage of tilling the extensive plain encompassing their village, but I am sorry to say only one sixth of the land was seen under cultivation. Leaving this, and travelling for a mile I think, we came to Ingdaw ; here the local features were indeed striking consequent on cultivation being on a much larger scale. Some few hundred spaces from the last named village we crossed the Mohbee creek, and pitched our tent in a village called after it.

6th January.—Halted.

7th January.—Started at 6 o'clock A. M. The general direction was N. W., and after journeying for 6 miles over an arid ground apparently hardened from a rapid evaporation since the rains, notwithstanding unpropitious to vegetation—yet we passed through tree jungles and high grass which led to Myountaga, containing twenty houses, and encamped in it.

The village is situated on the right bank of a Choung called by the same name. We had a great difficulty in taking the carts across ; one of them was upset consequent upon the badjehuship of the Tombée ; indeed the whole of them without exception seemed to me to be a parcel of inexperienced men not inured to the work which they set out for ; we were therefore obliged to drag the carts over, and in some in-

stances the yokes were unfastened, and by manual means or force we dragged them up to the opposite bank.

About 15 or 20 years ago, the men of this village brought down annually timber from a forest—no doubt from the Mazalle, lying six miles N. N. E., from this place. The Choung, as we were told by the Goung, has since become unavailable, on account of the obstructions, consisting of felled trees and rubbish. Their removal, or the translation of the timber from thence will cost an outlay of about Rs. 100 or 150.

8th January.—Started at day-break, the general route pursued was N. N. W., and after a wearisome march of 14 miles reached Yin-dike-quin, a village containing thirty or forty houses surrounded by small teak forests, which we estimated to contain one thousand trees of small dimensions.

Two miles from the place we last encamped in we crossed Lekin Choung, a branch of Yathoe, the latter taking its origin from Pymma-down mountain, the integral range of the Yomah Hills. We were here detained almost an hour to get the carts across. The road from this for about 12 miles was a difficult one, lying through grass and jungle and marshy ground, intersected at intervals of every three or four miles by small Choungs.

In some cases all traces of a path were invisible. This plainly shows that all land communication has ceased since the war. Our guide Kotha-khway assured us that we were in a Kway Goe road, (buffaloe stealing road.) We saw some indications which convinced us that such was the case.

After crossing Byinnyalabay Choung, we found that we were close to the teak forest. Five miles march N. W., brought us to it, not without the difficulty of crossing Kyeon Choung, and the detention of an hour and a half in seeking for a path which we lost; we struck out through glossy glades for three and a half miles, and came to Joe Byew Choung where teak appeared to terminate.

Here we halted for an hour, and were indeed disheartened on perceiving a high land lying between us and the said Choung.

In this dilemma, Dr. McClelland explored the jungle on the right of us, and discovered a village called Phet, consisting of a few houses, and obtained a guide who conducted us—after retracing our steps and crossing a narrow nullah and marshy ground covered with high grass—to our present encampment.

4.—A day's march. General route N. N. E., brought us to Oak-kan. After having accomplished a journey of 16 miles, we proceeded to Thounzai on the 12th January, and remained there two days.

5.—The town is situated in lat. $18^{\circ} 21'$. It exhibits the remains of an important place, encompassed by an extensive flat land or savanna happily intersected by the main stream and its tributaries. The course of the former near its confluence with the Lhine is N. N. E., and continues in that direction to its source to latitude $19^{\circ} 20'$ with continuous turns at intervals of every half a mile. Its average breadth is about sixty feet, and its waters during the wet weather are, as we were informed, perfectly clear with a sandy and rocky bottom. The country towards its junction is level, but gradually rises from Thakanjee towards the ranges of mountains on either side of it.

6.—The inhabitants of Thounzai are a sottish and ignorant set of Bacchinahs, and are thereby easily decoyed and made the agents for detruncating or cutting girdled trees, and for the surreptitious removal of prone ones, by residents of Rangoon. So endless and exorbitant are their desires, and their zeal to serve the interests of their employers, that they do not hesitate the transgression of the existing regulations by grasping at all, and can form no scheme of perfect happiness with less.

7.—The bartering of timber for *aqua vita* (vulgate brandy) and gunja, is another evil of demoralization to the inhabitants; it is producing the most baneful effects.

8.—An early application of some efficient remedy for this rapidly extending evil is exceedingly desirable, and that the recurrence to the practice of the Burmese Government as adverted to (two years previous to annexation, which applied stringent restrictive measures to the use of intoxicating drinks and drugs,) would receive the hearty approval of the more respectable portion of the natives, I mean Kyoung and Phrawteagas.

9.—The beautiful, healthy, and fecund tracts to be found in this locality, seem to have been sterilized and entirely abandoned to nature by these men, and it requires not much sagacity to predict that (if Government would accord to the points which have now been specified, and to all kindred suggestions connected with the well being of this district), if they are compelled to return to husbandry, they will rapidly rise to that importance to which their wonderful natural capabilities so fully entitle them.

10.—On the 16th, we directed our way to the teak forests, and entered them after travelling 14 miles. We had here the advantage of further examining the Choung; it was not quite dry, notwithstanding the advanced state of the season, its bed was filled with rock and pebbles

of indurated clay and stones, the bank shelvy, clothed with grass and bamboos and betel palms, with occasional clumps of wild plaintain and jungle trees.

11.—Behind the main stream runs a range of hills forming as it were a belt to the Yomak, covered with Teak, in company with numerous other Forest trees. These constitute Forest tracks, separated or run across by Choungs into sections, and called after them.

12.—The teak localities commence 14 miles from Thounzai Town; the first we met with stretched a little way along the Naimapyo Choung, and as far as could be ascertained, did not appear to extend far inland. We estimated it to contain about 1,000 undersized trees. Abundance of stumps and stunted shoots (marking the place where the trees once stood) were also observed, and obviously indicate that the trees in this part of the Forest have fallen dreadful victims to the axe.

13.—A regular Teak track may be said to begin two miles above Wajee, a Yaibine village, the inhabitants of which exclusively devote their time to rearing silk-worms, organizing, drawing out and subtilizing silken filament. I did not find their paddy land or Toungyas under cultivation, but about their tais or huts were seen several cucurbitaceous plants and plaintain trees.

14.—Another forest was visited on the 18th lying a few miles from the main stream, and containing about 200 full grown trees. From this to the Kareenzoo village—a distance of 9 miles, we passed through grass and bamboo jungle, teak occurring in occasional patches of from fifteen to twenty trees.

15.—The village (Kareenzoo) may be said to be within the skirts of the Forest; we seen hundreds of excellent mast pieces, and almost an equal number of felled loozars, and lying mostly in the defiles (apparently forced into them by timber-cutters) more or less destroyed by fire.

16.—Six miles in a westerly direction from the last named village, and two miles from Thounzai Choung, lies another forest abounding with a good number of full sized trees growing on precipitious slopes and a narrow plateau of mountains about 600 feet high.

17.—The following from my Journal may afford some information :—
“ Early this morning, (19th January,) after a rough breakfast, we crossed the river, ascended its right bank, and afterwards re-crossed and ascended its left bank (the Choung here being very winding), and after travelling over non-elevated ground and crossing the Thabyew Choung, the Tabayloo intersected our way. We ascended its course, and had the pleasure of finding that we were in the midst—as it may be descri-

edly denominated, of a fine teak forest. It extends from the ridges on the right bank until it comes quite close to the stream, receding as it approaches to the source of the latter, and disappearing towards a range of hills which are visible to the North-east. The ground here is in general high, intersected by Teedoo, one of its tributaries. We here inspected 800 trees measuring in girth above six feet, recently ringed by order of the Officiating Superintendent of forests. The said rivulet and its branch would unquestionably be quite adequate to convey with ease all the timber to the Thounzai Choung."

18.—In addition to the above I shall merely observe, that some thousands of Teak might be felled here and conveyed to Rangoon with facility. No killed trees have as yet been felled since the War, but we have abundance of proof that the fallen and dead trees have been removed.

[Since my return from the Forests, I have been informed the killing of large trees in this Forest was very limited.]

19.—For the conveyance of this description of wood to the nearest nullah, (I mean those situated a pretty good distance from water carriage) it would be desirable to employ a number of elephants. Buffaloes might also with great ease be employed in this Forest, the ground for the most part being even and unbroken.

20.—Little Teak was seen on the 20th Jan., although we ascended Tabayloo almost to its source for 12 miles in a S. S. E. direction. This satisfied me of what was recorded in my Journal of a previous date "receding as it approaches to the source of the latter (Tabayloo), and disappearing towards a range of hills which were visible to the N. E."

21.—Our way from this place for eight miles lay over a hilly region covered with bamboo and grass. We had the good fortune, when least expected, of discovering a Kareen village where we bivouacked, and were glad enough, as our provisions had all been consumed, and the obtainment of a day's supply in the wilderness was most providential.

22.—The Tsaukai Shoay-zan (who was appointed a local agent on the 18th January to take charge of the Forests as a temporary measure,) being apprehensive that we might be misled by the faithless guides, hotly followed us, accompanied with one of the office peons who was left with him to collect details, and joined us here.

23.—The day following, taking a N. E. route, and after crossing Gong Ngyeen near its origin, and ascending its left bank, we came to an elevated land overgrown with bamboos intermixed with Teak,

forming a natural line of demarcation separating Thounzai from the Oakkan Forests. There are a good many yats and few full sized trees. The removal of the latter would be attended with difficulty consequent on the remote situation of the Forests from the larger Choungs.

24.—The route now became diverse, and on crossing Lhai-ga-jee and ascending its course for two miles, and then ascending its right bank, I found on looking at my pocket compass that we were pursuing a S. W. course, and proceeding on the march in that direction for six miles, we came to Kyouk Nhounk which we crossed. Referring then to the office diagram, I found this to be a branch of Natsin (one of the extreme tributaries of Oak-kan Choung), and indeed we were led to it after following up for a mile the bed of the former.

25.—The region occupied by the Thounzai Forests consists of an elevated land about six or seven hundred feet high, having two cardinal ranges on the east and west side of the Choung, slightly trending at a distance of half to one mile towards one another, and indeed they almost meet as remarked by us near Thabyew Choung.

26.—The Eastern range, as far as I can learn, runs due N. ; I should estimate its width to be about 25 miles, the Western keeping somewhat closer with gentle slopes to the main stream.

27.—The forests though divided by the Choung into say Eastern and Western sections, in their minor features exhibit no difference of physical configuration. The first thing that draws a traveller's attention is the innumerable succession of subordinate streams—their names are given in the margin—intersecting the forests tracts, and presenting to his view a very pretty and picturesque sight. He also finds the singular fact that they are perfectly alike both in ratio and number.

Eastern Section.	Kyet-pung.
	Naimapyo.
	Kyet-myoun.
	Nahmap-houk.
	Yaigyee.
	Kyoukpyoak,
	Nga Toupmah,
	Nga Ywai.
	Shin.
	Gongngyeen.
Western Section.	Thabyew.
	Tabayloo.
	Pyah.
	Yaiong.
	Nahyee.
	Kanyinbyew.
	Oodoogwai.
	Tetnet.
	Yeet.
	Phyan.
Wahphew.	
Baulau.	
Woon.	

28.—The favorable habitat of Teak is on high ground not liable to submersion ; it has been stated by the late Captain Latter 'to be a peculiarly dry and arid-looking plant.' I never yet found in any one instance that it grows gregariously, but observed it in company with *Inga xylocarpa*, *Diospyros*, *Dipterocarpus lavis*, *Dalbergia*, *Lagerstemia regina*, *Careya arborea*, *Meitiera minor*,

Pterocarpus dalbergioides, and other jungle trees. I have made a rough estimate of the number of Teak trees growing in these Forests, they seem to contain 1 in 400 of their associates.

29.—From the details we gathered, there are in them 375 killed timber, and 1,113 felled, all situated one mile the nearest distance, and two the furthest from the Choungs. Their dimensions are noted in the margin.

Killed trees.
64 of 7 feet and upwards in girth.

58 " 6 " "
253 " 4 ft. & 6 in.

Felled Trees.
251 of 7 feet and upwards in girth.

12 " 6 " "
731 " 4 ft. & 6 in.

* Phalone.

Gwai.

Yindike.

Oakkan.

30.—On the 22nd January, after having performed a journey of 29 miles, crossing the Choungs named in the margin,* we came to Shawbone, a village situated on the East of Oakkan Choung, and lying 12 miles from the town of Oakkan.

31.—We left this place the following morning and directed our way to Kinpathee (on the Magayee Choung), which we reached after crossing Bat Choung on the Oakkan side, and pursuing a southerly course for 10 miles, on the morning of the 24th, we started for Yindike, and arrived about 3 P. M.

32.—The Teak Forests of Oakkan do not go lower than latitude $18^{\circ} 52'$, and they are only to be found in the tracts through which the Oakkan Choung and its tributaries run.

33.—The main stream takes its rise from the Yomah hills, about 110 miles from Rangoon town, in a Northerly direction, and continues its course nearly S. W. to latitude $18^{\circ} 15'$, emptying itself into the Lhine River about 50 miles from Rangoon.

34.—The subordinate rivulets which divide the Forest tracts are "Katayaza" 1, "Kyet-thoung" 2, "Yindike" 3, "Khway" 4, "Phalone" 5, "Natsin" 6, "Majoo" 7, "Kyoung" 8, "Dah" 9, "Sinoh" 10, "Meejoung" 11, "Thayamaw" 12, "Bamathay" 13, "Meedway" 14, "Thadan" 15, and "Wetsway" 16. Nos. 1 to 7 lie on the North side of the Choung, and Nos. 8 to 16 on the South. The quantity of timber remaining in the former may be estimated at 630 trees of seven feet six inches in girth and upwards, 1,050 of six feet, and 2,600 of four feet six inches, and in the latter 400 of seven feet 6 inches; 500 of six feet, 2,100 undersigned trees all lying within two miles the furthest distance, and one the nearest from water-carriage. On the forest No. 11, there are 533 logs above 6 feet, which were killed by order of the Forest Department, and on No. 8 sixty-seven trees.

35.—From the computation above made, it is obvious that the resources and capabilities of the Northern tracts must be far superior to those on the southern, although the soil and circumstances of both banks are the same.

36.—On the 29th January we started from the place of our encampment for Thakhanjee village (lying eight miles in an E. N. E. direction from Yindike), to examine the conterminous Teak Forests of Magayee and Mazalee, after which to cross the Yomah into the Phoungyee valley. We reached the place about 10 o'clock A. M.

37.—The Mazalee Forests lie about four miles N. E. of the abovenamed village, or two miles from Kyoukpasat, a branch of the Thanat, one of the tributaries of Magayee. The summits of the hills were covered with Teak, not growing gregariously, but in clumps of eight or nine, interspersed with other kinds of timber, at short distances from each other.

38.—The contents of these forests are, 300 of nine feet girth, 600 of seven feet six inches, 1,700 of six feet, and 3,800 of four feet six inches, lying within two miles of the stream.

39.—The Choung is obstructed by the accumulation of rubbish and sediment, and might be removed at a trifling expense.

40.—The forests on the Magayee are situated 12 miles N. of the Thakhanjee village. The following extracts from my previous Report, dated 21st December 1853, regarding these Teak tracts, may be interesting:—

“Moung Kine, a resident of Khoon-na-Kyke, a town bordering on the Lhine, states:—I am perfectly acquainted with the Magayee Forests; I know also the main Choung and its tributaries; their names are—

1. Kayoo,
2. Tha byew, and
3. Thanat.

No. 1.—Kayoo is situated 15 miles from the confluence of Magayee. Its forest is very extensive, being about 10 days' journey in circumference, and contains Teak of very good quality.

No. 2.—Tha byew lies 10 miles from Phalone village. The Forest is very large and abounds particularly with a great quantity of killed trees, say about 2,000.

The forest on No. 3, Thanat Choung, is the best, and far superior to those lying on Nos. 1 and 2 Choungs, both as regards the quantity and quality of the wood.

The deponent on being called and re-examined states:—The

Magayee is blocked up with lopped-off branches and trees. I should say that, if partly cleared with the axe, and accumulated to be burnt in the month of March, it will cost only Rupees 1,000. If this measure is adopted and carried out, the timber of this town-ship can be brought into the market in the ensuing season:

The reason why so many trees have been killed, (considering the Choung is deprived of water-carriage,) is, because it was the intention of the Burmese Government to employ men to remove this obstacle, and to compensate them with all the felled logs.—All the killed and felled trees I mean.—The Burmese Government assumed an undisputed right to them.

The villagers of Kinpathee were in the habit of dragging the timber of small size overland.

REMARKS.

The resources and physical characteristics of the Magayee Forests, having become a subject of interest and enquiry with both the Superintendent of Forests and the Commissioner of Pegu, I have therefore taken the deposition of Moung Kine, who appears to be a very respectable man, and whose statement I am inclined to look upon as worthy of credence; besides this, I have obtained other information which I trust will complete the partial Report I previously submitted regarding these Teak Forests.

A thorough appreciation of these Forests cannot be given without considering—

1st—The boundaries of the town of Phalone, after which the main stream now under notice, is named.

2nd—The physical features of the main stream and its origin.

The town of "Phalone" is situated six miles from the Lhine, having a deserted town, Tamboon, on the East, Phogoun village on the West, Inekaloon on the North, and Myomah village on the South.

Under the second head I shall recapitulate what I have said in the previous Reports:—

"The Magayee alias Phalone, takes its source from the Kamalee mountains, 20 miles above its junction with the main stream the Lhine; it is blocked up with fallen logs and rubbish, which has formed a bar covering a space of 20 miles."

The region occupied by the Magayee Forests on the Choungs Kayoo, Thabyew and Thanat, (differing in physical aspect from those lying on the Lhine,) consists of an elevated land of a digitated shape

or appearance, commencing four miles from Phalone village to the Kamalee mountains, the integral range of Yomah.

The Forests are, I am told, almost uninterruptedly immense.

The *Lagerstræmia regina* or *Pymmah*, is also found in these parts in abundance; it stands without a rival in strength, "for," says Mr. Mason in his work entitled "The Natural Productions of Burmah," "the posts of an old wharf at Tavoy which were of this wood (*Pymmah*), stood erect for twenty or thirty years." He seems however to consider that house posts often decay in the ground in a much shorter period. It is considered a valuable timber in ship-building.

The *Kanazo*, *Heritiera fomes*, or what is called *Scondree*, is indigenous in these localities; and in some sections is quite abundant. Dr. Wallich regarding its qualities, does not hesitate to assert that it stands unrivalled for elasticity, hardness, and durability, and says, "If it is not extensively employed for the construction of masts and felloes of gun carriages, it is solely because pieces of adequate dimensions are not procurable." Now, my informants peremptorily assert, that immense quantities, sufficient for such purposes, are obtainable here. Besides other uses to which they can be applied, continues the learned gentleman, "the charcoal made from it is better than any other sort for the manufacture of gunpowder."

I shall here take the advantage of making up the omission which was inadvertently left unexplained in my last report, and on which Captain Phayre has properly remarked—"It is stated there are 2,500 killed trees in the forests of this stream, though why they should have been killed on a stream where they would remain sealed up is not explained."

The statement of Mounk Kine explains this, and I may add, that although the Forests are deprived of water-carriage, yet the resources annually drawn were from one to two hundred loozars, which were expressly and invariably dragged in the middle of the rainy season when the surface is moist and slippery, because it then requires one tithe of the labour necessary in other seasons, when the surface is rough and a hinderance.

I attach little importance to the suggestions of Mounk Kine regarding the method to be pursued for the removal of the local impediment from the main rill. Persons who are acquainted with the destruction caused by the periodical fires of the Attaran Forests would, without doubt, consider the adoption of the measure proposed objectionable.

The vegetation would, at the time recommended, be dry and

parched, and it would supply the devouring element—burning the rubbish in the stream—with life, and thus the young, old, killed and prone trees be completely consumed. My opinion is, that the obstacle should be removed by manual means. I respectfully beg here to make a remark relative to persons possessing certain undefined prescriptive claims on the trees in our Forests, and I record it as a general opinion, that none were recognised as such by the Government of Ava; the wood-cutters or contractors as they were commonly called, on paying pouksane akoon (axe tax), were permitted to work the Forests under condition that all timber should be removed in the same year, on failure, the Government resumed it as its property; this regards trees fit for felling and already felled, killed trees, however, they have from time immemorial invariably maintained a prescriptive right to.

This summary manner of resumption may, in the eye of the law, be illegal. I would humbly suggest that a complete and exclusive property in every tree in which the claimants satisfactorily establish their right to both killed and seasoned, should be withheld, remunerating them according to usage and expediency."

41.—In the late exploratory visit, we were put in possession of data to justify me in asserting here, the number of killed, felled and green trees in the Forests on the Magayee stream. Green trees 150 of 9 feet girth, 700 of 7 feet 6 inches, 1,100 of 6 feet, and 3,400 yats. Killed 150 of 6 feet, and 280 of 4 feet 6 inches; felled 314 of 6 feet and 342 of 4 feet 6 inches.

42.—It may not be irrelevant to mention here the new mode lately introduced of transporting, clandestinely, the timber across the country, where the ground is rough and dry. The timber is carted and dragged by Buffaloes which are stationed at different stages down the streams.

43.—On the 23rd January 1854, we met 10 or 15 men with six carts laden with timber, near the village of Pymmah on the Dat Choung, one of the branches of the Oakkan, all bearing a distinguishing mark in Burmese.

44.—31st January :—Started in an Easterly direction for three and-a-half miles the bed of the Mazalee Choung, when we ascended its left bank (not without first meeting one of its tributaries called Toungtan descending from the Yomah in a S. E. direction,) and pursued a circuitous road for two miles in a S. E. direction when we descended into Nghetkyee, another branch, and ascended its right bank over a land in some places approaching almost to per-

pendicular, for three miles, crossed the Yomah, and with difficulty slid its declivity into Wah Choung, one of the lower branches of the Phoungyee, descending its bed for five-and-a-half miles, we reached the village called after the Choung.

45.—I may mention here that at the confluence of Sooboke, a subordinate stream of Wah, we observed its arenaceous bed partially levelled by timber, recently trailed or dragged along by buffaloes whose foot-prints were visible, and in no way obliterated.

46.—Visited these forests, but they contain about fifty full-sized trees, the number of stumps which were observed at every thirty yards convinced us that they must have been worked by the timber dealers with a vengeance.

47.—On the 2nd February we directed our way to the higher Teak tracts. We explored them within ten miles of the Yomah where they seemed to terminate. I should estimate them to contain about 100 full sized trees from seven feet and upwards in girth. An innumerable show of half grown trees, measuring in girth four feet six inches, were seen on the ridges.

48.—Examined the Mahooya Forests, lying 28 miles S. S. E. of Phoungyee Town. Teak appeared large and in abundance, extending for seven or eight miles along N. E. side of the Phoungyee valley. The path we took was through low narrow vales, with hills on our right and left, like two walls; on these regions Teak was seen, but it was remarked to improve in quantity and quality in the declivities.

49.—The almost total disappearance of the full sized trees, from the Phoungyee Forests except Mahooya, is easily intelligible from what has been stated in the preceding paragraphs. The said Forests, from their accessibility, (having an excellent Choung of sixty feet,) and proximity to town, were early worked, and have been for thirty or forty years, as I am informed, incessantly under the full operation of the axe.

50.—The numerous stumps (showing how much the resources have been drained,) satisfied us that extensive felling had been carried on—and, ever since the war, they are rapidly approaching to exhaustion.

51.—The yats, however, I am glad to state, bear in proportion to the vast quantities of trees which have been felled, and are rising in adequate numbers, and consequently their removal to the requirements of the Forests will renew or keep up the supply in the course of twenty years.

52.—We entered the Pegu or Zamayee Forests after crossing

a succession of protuberent land covered with abundance of teak of all sizes, and following the course of the tributaries of Mahooya to their sources and descended into Thanee a branch of the Pymmah.

53.—In traversing this part of the country watered by the Zamayee River, it was gratifying to observe almost on all localities Teak, interspersed with other jungle vegetation, and by proper management it will certainly ensure a large and never failing stock of Forest Timber.

54.—The hills are here on the N. E. direction (which are higher than those we crossed) and come down to the Choung; they have no connection with the Shony-green hills or those of Tounghoo. The Yomah hills run North to South round the extremity of Koutaga Forests, and it is from this range the main stream takes its rise.

55.—The Teak tracts are shaped or formed by the Choungs into twenty three sections; viz.: ten on the Eastern side of the stream, and thirteen on the Western, these extend along its course. The best and the most productive I should say are, Taidaw, Monyogalay, Monyojee and Khadat.

56.—These Forests, although they have not escaped the ravages of the axe, of all others, best exhibit the character of a regular Teak Forest.

57.—We could gain no information as to the existence of any felled Teak on either side of the stream already mentioned; in fact, I believe it is generally known that all such available timber was seized and appropriated by contractors deputed by the residents of Rangoon.

58.—In fine, I respectfully beg to observe, that none of our Rangoon Teak Forests can with propriety be said to be inexhaustible.

59.—The quantity of Teak now required for the erection of private and public buildings, and its demand in Calcutta and Nagore, will soon impoverish our Forests if stringent rules are not introduced for their better conservancy.

60.—The system of allowing persons, (as during the Burmese time) to work the forests without keeping them in *terrorem* by threats of inflicting heavy fines or confiscation for the least transgression of the existing rules, may be ruinous. They will lay their hands on all that come within the scope of their avarice.

61.—I shall here record what some of the oldest inhabitants of Pegu town deposed before Captain Grant the Assistant Commissioner. They ran away with the idea that, as the Forests seemed to be in-

exhaustible; their speculations, calculated as present profit or loss, may be unlimited, without entertaining the slightest apprehension of depriving future generations (by their improvident cutting) of the benefit they now enjoy.

62.—In illustration of the above I shall quote the following from my note-book;—

“I remark at this place, (Yindike-quin?) that the small trees which constitute the forests were molested and mutilated by the people of the district; whenever a person evinced a desire to purchase yokes for his buffaloe, handles for dahs, &c, they procure for him in the adjacent wood.”

63.—The cutting of yats should be, as far as practicable, prohibited. However desirable it may be to forbid or enforce such a rule, I must confess, that I am at a loss to know how such impediments can be attempted or laid without stopping the trade in yard pieces, which are just as much in demand as mast pieces.

64.—The subject does not appear to have escaped the attention of the officiating Superintendent of Forests, who has very properly come to a conclusion which will not at all excite any discontent, that all that can be done for their discountenance in some degree, is the imposition of a uniform duty, increasing it as their transportation are augmented.

65.—In conclusion, I humbly beg to suggest that an encouragement should be given for the transportation of full-sized Teak trees with the view.—

1st.—That a large consignment of timber might be realized and duty recovered on them.

2nd.—It will facilitate the growth of the under-sized trees.

R. ABREU,

Head Asst. to the Offg. Supt. of Forests.

RANGOON,
The 18th March 1854. }

JOURNAL OF A TOUR &c.—IN 1854.

2nd of January 1854.—Left Rangoon at day break for the Forests accompanied with thirteen men of M. N. I., and an equal number of the Pegu Light Infantry Battalion; the direction of our route was due E. for a couple of miles, through a jungle of wood-oil trees, (already tapped,) and bamboos. Pursuing this direction, we found that the route was a divergent one. In the course of a quarter of a mile, we found that the road to Ko Khine village, consisting of forty houses and having an interstice of fertile open ground, partially cultivated with vegetables, diverged to N. E.; continuing in this direction, the contrast from the village we just passed with that of Kam-bet and Yaigoo was striking, for there was nothing but grass jungle growing over a paddy land. A mile from this place we encamped at Zwayzone. The Phoungyee whose Kyoung lies proximate to our place of encampment, was a very obliging religious man, supplying us with such necessaries as he could afford; in return I presented him with twenty-five cigars which were thankfully received.

3rd January.—Started at day-break. Our general route N. N. E. We passed by Thadajee village containing 40 houses, situated about a mile or a mile and a half from Zwayzone. Proceeding in this direction, the Creeks Thadajee and Thadagalay intersected our way, the former situated three quarters of a mile from the latter, when we went over the margin of a wide paddy plain for a mile, which is rapidly falling into a jungle. We met Captain Williams and his Assistants surveying in this place about 3 miles from their camp in Toun-nyo village which we passed. Leaving this and travelling for three miles, we came to Ananbeen, a village of thirty houses, and proceeded on, when after half-a-mile's journey, we came to a village abounding with mangoe trees,—the Natives have very appropriately given the appellation of *Tharet-kone*. The inhabitants of this place are apparently in indigent circumstances. They have not cultivated a single acre of land ever since the Province came into our hands. On inquiry, I find that it is attributable to the loss of all their buffaloes by disease and not from an aversion to labour.

Toung-thoozoo (one and a-half mile from the above place and containing twenty five houses) on the contrary, is in a rapidly progressive state. I must certainly say the inhabitants are very industrious, and the fact of their land being covered with paddy, proves such to be the case.

There is another village called Sanjee lying close to Toung-thoozoo. We were warned by the men of this village not to en-

camp at Kalouk Koonidine lying three miles from this place, whither we directed our way on account of the peculiar situation of the village, having jungles on all sides infested with wild elephants and tigers,—the latter are so ferocious and sanguinary, that they do not scruple to carry away men. We came to the village about 2 o'clock p. m.

4th January.—Left Kalouk-Koondine at day-break.—Throughout the whole of this day's march of twelve miles, our route was a mere cart-track, lying through a thick wood which impeded the progress of our carts. $\frac{1}{2}$ Couple of miles before we reached Touk-Kyen, where we encamped—the road however became comparatively level.

I observed during this day's movement foot marks of wild elephants, and if we are to judge from them, there must undoubtedly be a good number of these animals.

The village of Touk-Kyen may be said to be celebrated for its extensive plain. Goung Kowike related to us, that previous to the late war the whole of it was covered with rice cultivation. In order to bring it again to its former arable condition, he has secured a good number of buffaloes, and expects to reap a rich harvest in a year or two hence.

5th January.—Started: the whole of this day's march of 12 miles lay through dense trees, grass jungle, and marshy ground; through the former the road for five or six miles was obstructed with felled trees at interstices of every fifty or hundred yards; we were therefore necessitated to remove those capable of being shifted or contrived a new road as we considered feasible or expedient; through the latter, it was not only troublesome, but the hackreewallahs complained that it was too much for their bullocks.

The course lay in a N. E. direction, but after a few hours' circuitous travelling, the route became devious, sometimes E. and sometimes W.

In this way for $2\frac{1}{2}$ miles we were led to Bwetjee village, and about 12 o'clock A.M. arrived at Kyet-Phoogan, a despicable village containing twenty houses. The wretched condition of the place may be imputed to the want of industrious habits in the people as, although in the midst of an arable plain, agriculture is entirely abandoned.

Three miles from this we passed by another village called Yaithoe, consisting of twenty houses. The inhabitants have every advantage of tilling the extensive plain encompassing their village, but I am sorry to say only one sixth of the land was seen under cultivation. Leaving this, and travelling for a mile I think, we came to Ingdaw; here

the local features were indeed striking, consequent on cultivation being on a much larger scale. Some few hundred paces from the last named village we crossed the Mohbee creek, and pitched our tent in a village called after it.

6th January.—Halted.

7th January.—Started at 6 o'clock A. M. The general direction was N. W., and after journeying for six miles over an arid ground apparently hardened from a rapid evaporation since the rains, notwithstanding unpropitious to vegetation—yet we passed through tree jungle and high grass which led to Myountaga, containing twenty houses, and encamped in it.

The village is situated on the right bank of a Choung called by the same name. We had a great difficulty in taking the carts across; one of them was upset consequent upon the badjehuship of the Tombee; indeed the whole of them without exception seemed to me to be a parcel of inexperienced men not inured to the work which they set out for; we were therefore obliged to drag the carts over, and in some instances the yokes were unfastened, and by manual means or force we dragged them up to the opposite bank.

About 15 or 20 years ago; the men of this village brought down annually timber from a Forest—no doubt from the Mazalee,—lying six miles N. N. E. from this place. The Choung, as we were told by the Goung, has since become unavailable, on account of the obstructions, consisting of felled trees and rubbish. Their removal, or the translation of the timber from thence will cost an outlay of about Rupees 100 or 150.

8th January.—Started at day break, the general route pursued was N. N. W., and after a wearisome march of 14 miles reached Yindike-quin, a village containing thirty or forty houses surrounded by small Teak Forests, which we estimated to contain one thousand trees of small dimensions.

Two miles from the place we last encamped in we crossed Lekin Choung,—a branch of Yathoe—the latter taking its origin from Pyimmadown mountain, the integral range of the Yomah Hills. We were here detained almost an hour to get the carts across. The road from this for about 12 miles was a difficult one, lying through grass and jungle and marshy ground, intersected at intervals of every three or four miles by small Choungs.

In some cases all traces of a path were invisible. This plainly shows that all land communication has ceased since the war. Our guide, Kotha Khway, assured us that we were in a *Kway Goe road*, (buffaloe

stealing road.) We saw some indications which convinced us that such was the case.

After crossing Bin-nyalabway Choung, we found that we were close to the Teak Forest. Five miles march N. W., brought us to it, not without the difficulty of crossing Kyoon Choung, and the detention of an hour and a half in seeking for a path which we lost; we struck out through glossy glades for three and a half miles, and came to Joe Byew Choung where teak appeared to terminate.

Here we halted for an hour, and were indeed disheartened on perceiving a high land lying between us and the said Choung.

In this dilemma, Dr. McClelland explored the jungle on the right of us, and discovered a village called Phet, consisting of a few houses, and obtained a guide who conducted us—after retracing our steps and crossing a narrow nullah and marshy ground covered with high grass—to our present encampment.

9th January.—Halted.

I observe that we are now really on the out-skirts of the teak Forests which extend to the east from this place.

We must be about four or five miles east of Magayee Forests, or E. S. E., calculating the time it took a messenger to proceed to Magayee, viz, 2 hours. We have here small teak trees within a few yards of our camp, in company with *Dalbergia*, *Odina Wodier*, *Dillenia augusta*, *Walsura piscilia*, *Dipterocarpus turbinatus*, *Kydia calycina*, *Strichnos nuc-vomica*, *Lagerstræmia regina*, *Sapindus rubiginosus*, *Careya arborea*, *Escoecaria agallocha*, and Yindike, a species of ebony, quite common here.

Yindike-quin village has been formed since the last war by people from Rangoon and other parts of the Pegu Province; fever is now very prevalent among them, and in almost every house one or more of the inmates are laid up; last dry season they suffered much from small pox, or *Variola*. There is very little cultivation about the village which is surrounded by a small grassy plain.

10th January.—Pursued an easterly course for two miles, and then the road diverged to the north and extended alternately through tree and grass jungle interspersed with *Grewia* and underwood; the latter forming open glades of half a mile in breadth encompassed by jungle trees met with yesterday, as well as *Lagerstræmia* and *Sapindus rubiginosus* more or less plentiful.

The surface of the country here is undulating in broad uniform slopes, and the grass jungle only perceptible by the nullahs, or, (as they

are commonly known, by the name of) Choungs, which were crossed at distances of every two or three miles. Two miles from Yindikequin we crossed Thabyew choung—a branch of the Magayee stream—which was quite dry, the bed of it is gravelly and the banks high, composed of red laterite. Two and a half miles from the last named Choung we crossed another, called Thanat; four miles from thence we came up to a bamboo grove forming, as it were, a magnificent arcade large enough to shelter a regiment of soldiers. Between Thabyew and Thanat we passed through a small teak forest, and straggling teak trees were seen to show themselves at intervals on the higher grounds; all along our way from Yindike-quin, and at Thanat they were observed to be numerous, and, for about three miles, formed probably about two per cent of their associates. This forest had been very much injured by the axe, and evidently had been richer in teak than it is at present, and doubtless extended at one time down to, and was as far as, Yindike-quin, but has become exhausted from indiscriminate cutting as it is proved from the number of stumps of felled trees that were seen; indeed, every stick worth removing had been felled. About 8 o'clock p. m. we reached Oakkan village.

11th January.—Halted at Oakkan, and was sorry to find our Forest Goung in the last stage of remittent fever, contracted during his recent visit to the Forests, accompanied by two peons, one of whom has since, from the effects of the journey, fallen a victim to the same disease, and the other is reported to be in a hopeless state. We have been thwarted in our intentions to enter the Oakkan Forests from this place—being deprived of the assistance of our Goung—and compelled to make arrangements to proceed to Thounzai Forests, and enter them in that direction first.

12th January.—Compelled to send our carts away, owing to the difficulty experienced in moving over the country. The Havildar's party directed to return with them, taking for our escort the Burmese sepoys only. The villagers of this place, who agreed to convey our traps for eight annas per diem for each cart, refused now to proceed, demanding one Rupee in excess of the amount formerly agreed upon, and even then would only consent to take us on to the first village we may come to, where we might not succeed in obtaining other carts to relieve them. Under these circumstances we were obliged to send for our carts and the sepoys.

18th January.—Our carts and sepoys having proceeded one march on their way back to Rangoon, before our order to return reached them,

we were detained another day at Oakkan. The general appearance of the country towards the junction of the Oakkan stream with the Lhine river, is flat and uninteresting, but well suited for rice cultivation; to the northward it is more diversified with hills and undulating ground, and there is a range of hills wooded with high trees and thick jungles extending for some miles from this place, which is called Thittawzat. The Oakkan stream is only navigable during the rains; the remainder of the year it is a little more than a nullah with about four or five feet depth of water.

14th January.—Left Oakkan at day-break, general route N. N. E. and reached Thounzai town about 5 o'clock in the evening, after a journey of twelve miles. The principal difficulty of this march was in crossing the Oakkan choung, which detained us nearly an hour, the banks being steep, and though they were broken down at the place where the road lay, yet required to be levelled on one side to allow the ascent of the carts. We passed by several villages at the commencement of our journey, all bearing the name of Oakkan, although situated on the opposite side of the choung. After continuing our march for six miles, we crossed Mening choung, and there we halted for a while amidst the ruins of Mening village, which was destroyed some time since by Moung Goung-gyee and his party; and proceeding on for two miles from this, another stream called Tubbee intersected our way, and about a gun shot from the Choung—on the right hand side of our road—were seen a few huts occupied by Kareens who had cultivated one quarter of an acre; and half a mile from this place, we crossed the Thounzai Choung; the road from thence to the place of encampment was good.

15th January.—Halted.

Thounzai is a romantic and beautiful place, the plains are handsome, being sprinkled here and there with mangoe trees, and present traces of having, until recently, been a town of importance. The country almost on every side exhibited a wide plain of rich level, and a succession of sylvan glens—but I am sorry to remark that a small portion of the former only has, as yet, since the annexation, been brought under cultivation. The Thounzai Choung is a large stream in the rains, but is scarcely knee-deep at this season. The water varies in quality, but is in general excellent.

Wild Indigo, *Indigofera*, used in forming a blue dye by the natives, is seen in Thounzai here and there, but it is scarce. There is no reason to suppose that it would not thrive, and would possibly grow exuberantly in the dales and glens, and add new

value to this interesting part of our possessions. The fruit of the Jack, *Artocarpus integrifolius*, seems here always in season. *Tamarindus indica* appears everywhere, and the pine apple, *Ananas sativus*, flourishes in the shade of hedges. The external soil of the plains is a heavy clay. *Sandoricum indicum*, *Carica papaya*, *Zizyphus jujuba*, *Psidium pomiferum*, *Phyllanthus embelia*, *Mangifera indica*, *Citrus bergamia*, *C. acida*, *Borassus*, and a few trees of the *Cocos* are cultivated near villages. On the banks of the Choung were seen *Nicotiana tabacum*, *Raphanus sativa*, *Sinapis dichotoma*, *Zea mays*, *Solanum melongena*, *Solanum lycopersica*, *Hibiscus sabdariffa*, *Phaseolus mungo*, *Coriandrum sativum*, *Anethum sowa*, *Cuminum Cuminum*, *Mentha quadrifolia* and *Capsicum*; and to these may be added the following which I noticed in the dry beds of the streams, *Citrullus Cucurbita*, *Cucumis usitata*, *C. sativus*, *Hibiscus longifolius*, and *Cucurbita maxima*. The produce of the country, at one time, was teak, wax, cotton, and rice.

16th January.—After having sent our carts on to Yndikequin, under charge of a Naik and four men with one sick Pegu sepoy, we left Thounzai town at 9. A. M. and arrived at Thakhanjee village (containing about twelve houses) being a distance of five miles. The scenery at this point was very beautiful. Masses of richly variegated foliage clothed the banks of the Thounzai Choung, bent over, in some places, until the stream rippled among the leaves. Often dark shadows crossed it, and as often were chequered by sunbeams glancing through the branches upon the clear and singularly light-coloured water.

The highest point of the Yomah hills observed from this place (Thakhanjee) is N. N. E. about twenty five miles, taking them in a direct line, from thence the range of mountains form inaccessible precipices, in some places crossing to the North of the Teak forests—which may be said to extend to the foot of the Yomah range—forming a belt of seven or eight miles broad, the teak forests being interrupted by vallies. The direction of our route to Thakhanjee was N. E. on the Lhine jurisdiction, or rather, on the Rangoon side of the Choung; we then crossed to the Tharawadie side, direction N. W. when we passed through Ngyoung-bin-panzwai village, consisting of sixty houses, lying about a mile from Thounzai town, and after traversing through tree forests and grass jungle, we came to camp about 1 P. M. In the former, I observed two species of *Pentaptera*, *Melicoca trijuga*, *Walsura picidia*, *Careya arborea*, *Delbergia*, *Diospyros melanoxylon*, *Cassia sumatrana*, *Adenanthera paronia*, wood

oil, Iron wood and Lagerstræmia. In the latter the uncommon plants which cover the ground, would form an ample field for botanical research ; but it would fill a volume and require more leisure and talent than I possess to attempt to describe in detail the botanical productions. The following may, however, be noticed. The incomparable, elegant, and much branched *Gold fusia isophylla* with an erect stem; a species of *Begonia*, a pretty little annual; *Eria obesa* with small white flowers with a tinge of pink, and a yellow lip ; two or three species of blue flower *Aneilema herbaceum*; the large *Coreopsis* (I believe *Coreopsis Grandiflora*) with large yellow flowers; a species of *Bignonia*, a climbing shrub, of which I was unfortunate in not meeting with the flowers.

It is worthy of record here, that after we crossed into the Tharawadie district, and passed Ngounbinpanzwai village, the march, for about a mile from the latter place, was through an extensive garden and ricefields which were delightful in the extreme, as the verdure and fertility which everywhere displayed themselves were beautiful and surprising. The delicious shade formed by the wild luxuriant union of jack trees, mangoes, tamarind, and the leaves of the broad banana,—the delightful solitude which invited to repose, and the silence which reigned around, broken only by the waving foliage of the trees and the chirping of birds—the balmy temperature of the air—every thing in short that belonged to nature, invited to love and happiness; but amidst these pleasant dreams, some deserted village destroyed the charm of the illusion, and proved how much a few myrmidions—Goung-gyee and his men—could mar the greatest blessings both of nature and industry.

17th. January.—This morning's fog, from the extreme humidity of the air, completely obscured our view of the country for several hours after sun rise, but when the atmosphere cleared up, we were very amply repaid for this privation by the rich prospect which the approach to Thounzai teak forests presented ; nothing I could say could give a person even a faint idea of the extraordinary grandeur of the scenery. It was a combination of all that was perfect in landscape. If I experienced strange sensations on passing across the plain of Ngoung-bin-panzwai, I felt infinitely more on entering the teak forests of Thounzai, to which even Dr. McClelland has attached the epithet "grand," and which the Burmese dignify by the expressive title of "silver and gold mines," implying enormous revenue to be derived from them.

The road we took to-day lay on the Tharawadie side of the Choung, and extended due east for eight miles, when we again crossed Thounzai Choung from Tharawadie to the Rangoon side, and proceeding in the same direction for about half a mile, we came to Shoay-loung-Kan, a village of four houses. We were then conducted in a circuitous direction tending to N. E., and found ourselves to our great surprise after passing Naimapyo Choung—a tributary of the Thounzai—about a mile from Shoay-loung-Kan village, and after travelling two miles more in that direction, we crossed from the east to the west side of the main stream, where, after sundry ascents and descents we encamped at Wajee village, containing thirty houses, the inhabitants partly Yaibines and partly Burmese, were engaged in rearing silk worms and making silk. As we came to this village, it was impossible for me to answer the multiplicity of questions which the inquisitive natives proposed to me. They spoke much of the late war, and were astonished that the English did not proceed to Ava, after they were masters of Rangoon, and extirpate the Burmese government. There is here a small deep pool, in the bed of the Thounzai, abounding with fish: and the catching of these furnishes occupation to nearly all the boys and girls of the place. The odour emitted by putrified masses lying exposed to a burning sun was intolerable.

I must not forget to mention that, after leaving Shoay-loung-Kan, we passed through a small teak forest as at Yendikequin, which lay along the banks and bases of the small hills. A great deal of stumps were observed, showing that this part of the forest is almost entirely exhausted.

18th January.—Crossed the main stream over slippery rocks amidst deep pools of clear water—the banks were steep and precipitous, and clothed with bamboos and occasional trees of *Dipterocarpus turbinatus* and *Inga xylocarpa*. Here we came to a small teak forest of two hundred full sized and about two thousand undersized trees. We then followed a foot path for a distance of fifteen miles over the descents and acclivities of the verges of the northern range of hills, covered with teak (the deep jungles and windings from the direct line rendering the road intricate and difficult) and arrived at Kareenzoo village about 3 o'clock in the morning.

Small pox, or *vario'a*, I find, is prevalent in this village, and I have been informed it is also throughout the forest districts, proving fatal to a most alarming extent amongst the unfortunate Kareens, so much so that there is scarcely an instance of one family escaping

without the loss of one or more of its members; while others were grievously afflicted. This dreadful scourge, from what I have learnt, was not confined in its attacks to any age or description of persons: the young, the middle aged, and the old all suffered under its influence; and altho' it is said there were more numerous cases amongst the young, I have been given to understand that the disease proved much more fatal amongst the two latter classes, taking the relative numbers into calculation. I regret I was unable to ascertain the numbers that fell victims to this disease, but it is very certain, as I said before, that it was fearfully great, and from all accounts it would also appear that its ravages were not less severely felt in the populous villages situated in the plains. Seeing, therefore, that such were its effects on the human race, it becomes, in my humble opinion, a duty incumbent on our Government to adopt such measures as may appear most likely to prevent its recurrence, or to check its progress should it unfortunately again make its appearance, by deputing vaccinators throughout the villages, or instructing the Goungs in the Mofussil in this branch of science. There can be no difficulty in following out these suggestions, as every one who has paid any attention to the habits and customs of the natives of this country, must have remarked that, when a malignant disease actually makes its appearance among them, they, under the influence of terror, willingly submit to any measure they conceive calculated to afford them relief, or may be recommended by those in whose opinion they place any reliance, as being likely to give a check to the dissemination of the epidemic. In proof of this, I need only mention that, during my stay in this village, I was constantly troubled for medicine.

We examined the teak forests about the Kareenzoo village, and I should think they contained several thousands of full sized trees; the greater portion would answer very well for masts and keel pieces. Numerous saplings were noticed as well as a few yats, or undersized trees, this disparity between the full and half grown trees can only be accounted for thus:—the natives, for the want of means, generally selected for the market undersized trees in preference to timber of full growth and dimensions. I met with, during this day about four hundred logs of teak, but they appeared to me to have been partially destroyed by fire. The following are the variety of trees found associated with teak. *Inga xylocarpa*, two species of *Pentaptera*, *Careya arborea*, *Cinnarus speciosa*, *Terminalia belerica*, *Odina*, *Andros*, *Dillenia angusta*, *Walsura picidia*, *Strychnos*, *Grewia floribunda*, *Nauclea cordifolia* and wood oil trees.

19th January.—Early this morning, after a rough breakfast, we crossed the river, ascended its right bank, and afterwards recrossed and ascended its left, (the choung here being very winding) and after travelling over non-elevated ground and crossing the Thabyew choung, the Tabayloo intersected our way. We ascended its course, and had the pleasure of finding that we were in the midst,—as it may deservedly be denominated, of a fine teak forest. It extends from the ridges on the right bank until it comes quite close to the stream, receding as it approaches to the source of the latter, and disappearing towards a range of hills which were visible to the north east. The ground here is in general high, intersected by Teedoo, one of the tributaries of Tabayloo. We here inspected the eight hundred trees, (measuring in girth above six feet,) recently ringed by order of the officiating Superintendent of Forests. The said rivulet and its branch would unquestionably be quite adequate to convey with ease all the timber to the Thounzai choung. The other trees, composing this forest, are the same as those met with in Kareenzoo forests, except that *Terminalia bellerica* and *Odina woder* were of common occurrence.

I was delighted to find that two long defiles of hills, on both sides of Thounzai stream meet almost near Thabyew choung. Indeed, the country was so interesting, that we strolled about till night's sable mantle compelled us to think of returning to camp.

I was very fortunate to kill four wild fowls, and found them a most seasonable addition to our usual uninteresting fare. A Kareen came to me and proposed to barter a suckling pig for jagree or sugar. We were delighted to make the exchange, as we were almost next door to starvation, and regaled ourselves in the evening with a royal feast on "tender pork," the roasting of which caused the greatest possible excitement, and the effect of which was to make us all sleep so soundly, that we missed some sport in the night. A hog deer (*Cervus porcinus*) crossed our camp, and awoke up two of our peons, who seized their muskets, and jumped up just in time to hear the plunge in the long grass, that is, to be too late.

20th January.—Our encamping ground of yesterday though otherwise agreeable, was a damp spot overhung by magnificent trees, but infested with musquitoes; so we were glad to be en route again to-day at day light. We accordingly ascended the Tabayloo almost to its source for twelve miles in a S. S. E. direction, climbed its left bank and passed over a hilly and mountainous

country in which we noted little or no teak, but we found it mostly covered with *Bambusa gigantea*, *B. spinosa* and other undescribed bamboos growing mixed with *Urena lobata*, *Sesamum indicum* (found growing wild) and *Grewia*—a very common plant; and travelling for eight miles more we bivouacked near a Kareen village, where I found the *Aloe soccotrina* largely cultivated, with numerous leaves.

I happened after dinner to stroll into the village, and there found Moung-Youk, the Burmese clerk, surrounded by a bevy of Kareen damsels, with whom he had already succeeded in establishing friendly relations. Conversation was somewhat limited. The young ladies, however, did not depend upon the conversational powers of either of us for their amusement. They were quite satisfied with staring at us in amazement, and giggling among themselves, while we found food for contemplation in speculating whether their remarks were likely to be complimentary or not. Gradually, as they found we were quite tame, the group increased—and one bolder than the rest offered us a quantity of boiled esculent root—the *Psophocarpus tetragonolobus*, which we skinned and handed to one another with profound and marked civility. At last the group became so noisy that the sounds of merriment reached the ears of Dr. McClelland and the rest of our party, who did not linger over their flesh pots under such inviting circumstances. Soon the village was filled with our people, so I thought it time to create a diversion by the introduction of a present, and several bundles of cheroots were placed before their glittering eyes. This, I informed them, I should divide equally and impartially. At the same time, I inwardly resolved to secure as large a portion as possible for a beautiful creature who had been feeding us. In virtue of this superior claim, it was clear that she was entitled to the largest share; and I was just debating within myself how this was to be managed, when she settled the matter for herself in the most off-hand way, by making a vigorous snatch at the tempting prize, evidently with an idea of appropriating the whole. Another resented so strong a measure, and attempted to grasp at the cheroots. Each one now saw that it would become the property of the stoutest arm, and the whole of the party threw themselves into the contest with frantic ardour. Scrambling, screaming, and romping were displayed. It was utterly hopeless to attempt to interfere; crumbled and pulverized the cheroots lay in every direction.

21st January.—It is a well known fact that one of the most severe trials of patience to which the traveller in a wild country

is subject, is invariably in his guides. Our exploration through the Thounzai forests, I regret to remark, did not prove an exception to this rule. We had, before starting from Kharrenzoo village, on the 19th instant, distinctly explained to the Tsaikai (Kareen Goung) the length of time and the line of country over which we wished our travels to extend. He informed me that he would give the guides explicit directions upon this head; and, therefore, when we found ourselves in a remote part of the teak forest and other jungle trees which had never before been trodden by a European, it was with no little dismay that we listened to their question, of where we wished to go next. We had followed them with blind confidence over precipitous hills, through impetuous streams, along narrow valleys, and by dangerous paths for the last two days; and had, by dint of extreme exertion and at the peril of our necks, at last obtained the highest summit of one of the outer ranges of the Yomah,—near which a few houses of the Kareens were scattered—only to be interrogated, when we got there, to inform them as to our future destination, insinuating that having only reached our present position with much toil and risk, we had better retrace our steps and not attempt to cross into the Oakkan forests from here. We held a very different opinion, and having got so far, we said that it would be unworthy in the extreme to be daunted by the perils of the road or vagueness of our destination. We declared that, in spite of the dangers, we had not seen enough of Thounzai forests, and that it was a matter of perfect indifference to us in which direction we went, seeing that on every side they were new and hitherto untrodden ground. Seeing us resolute, they promised to conduct us, and accordingly at seven o'clock this morning we were again in motion, our route being N. E. for a mile, when we crossed Gong-Ngyeen Choung near its source, and ascended its left bank, passing over high ground, forming the boundary hills between the Thounzai and Oakkan forests. The path, which we had to clear, extended chiefly through bamboo jungle intermixed with eight or nine hundred full sized and undersized Teak trees. One of the former class, which I measured at six feet from the ground, was seventeen feet in circumference. There is no reason, therefore, to doubt the capability of this forest producing first class timber, if half grown trees be allowed to stand until they attain their full growth. Here, as in other forests already examined, there were a large quantity of felled trees all more or less burnt by fire. The removal of large Teak timber, from this part of the forest, would be difficult, being

situated so far from the larger Choungs. After passing through this forest we crossed Lhai-gnee stream, and ascended its course for two miles, when we climbed its right bank, which was very steep directing our route S. W.* for six miles, when we crossed Kyouk-Nhounk (a branch of the Natsin on the Oakkan side), and having followed its course for a mile, we were led to Natsin, and descending it for two miles, we bivouacked on its left bank as the sun was sinking behind the tops of the highest trees, and as the evening closed in, the effects were very beautiful.

I can never forget the din and bustle when the order is given to encamp; there is always plenty of employment for everybody on such occasions. Some make the fire and collect wood, others clear away the underwood and spread grass and leafy branches to serve as beds, for, when we left Thounzai town, we reduced our baggage to the smallest possible dimensions—which consisted principally of provisions—as we carried no tent, and our spare wardrobe was limited to two or three flannel shirts and pantaloons. Then last comes the preparation for dinner. The various components of that meal are hissing and bubbling, and manifesting other signs of impatience to be taken off the fire; our booth, or as it is called Chuppar in Bengal, is generally pitched in the levellest place, and abundantly strewed with leaves, and all that we possess with us is scattered about in grotesque confusion. Wet clothes are hung on branches above the fire to dry, and with our legs tucked under us, and our plates in our laps, we look complacently round, and consider ourselves the most envied of mortals.

In this day's march I was much disappointed with the great scarcity of all kinds of game upon the banks of the choungs, which, from their solitary character and the excellent cover they afford, in any other country would have been abundant.

It has been already observed that the land lying about Oakkan village is low, but further back it rises into hills, where the ground is less fruitful, being for the most part a mixture of sand and gravel inclining to clay. The Oakkan forests, as may be expected, are high, hilly, and in some parts a mountainous country. The mountains are comparatively small, and are much lower than that of Thounzai, running in ridges parallel to each other. Between them flows the Oakkan river in majestic meanders, receiving the innumerable streams which proceed from the mountains on each side. The Oakkan forests are distinguished for their variety and valuable timber, as *Conocarpus robustus*, *Careya arborea*, *Serculia alata*, *Dalbergia*, *Terminalia bellerica*, two species of *Blackcellia*, *Garcinia Cowa*, *Walsura piscidia*, *Strychnos*,

Pentaptera, and other woods used in dyeing or tanning leather, carpenter's works, and ship building. The teak of this place is generally admitted to be little inferior to those of Thounzai, but the quantity has been, and still is, very great. Five or six ships may be annually built and rigged out in Rangoon with the produce (Teak) of these forests.

Pentaptera arjuana and *P. glabra* were observed to grow here to an amazing bulk, with clean trunks, and would afford the navy with masts and yards. The most prevailing tree here deserving of notice is the *Dipterocarpus turbinatus*. The foresters extract from it considerable quantities of oil for the manufacture of torches, although "it has been found," says Mr. Mason, "to answer as a good substitute for fish oil, in currying leather; and it is used for house varnish."

The streams paying tribute to the Oakkan are numerous, and many of them large, bold, and deep, affording facilities for floating timber in the rainy season. The principal are *Katayaza*, *Kyet-thoung*, *Yindike*, *Khway*, *Phalone*, *Natsin*, *Majoo*, *Kyoung*, *Dah*, *Sin-oh*, *Meerjoun*, *Thaya-maw*, *Bamthai*, *Meelway*, *Thadan* and *Wetsway*.

22nd January.—We had to cut our way for two miles with difficulty through grass and bamboo jungle, when we came to Way-tha-boo stream—one of the smaller branches of the Oakkan,—and having ascended its right bank, passing over hilly and mountainous tracts for six miles covered with patches of teak, when Kyangah—a tributary of Phalone—intersected our way, and ascending its right bank, we passed for six miles through a teak forest containing about two thousand undersized trees, and ascending and descending for fifteen miles of Teak forest widely dispersed, we crossed the Oakkan river and stopped at Shawbone village. On arriving here, we immediately invaded the most substantial looking house; and on exploring it, we were delighted to discover an elderly woman cooking a pot of rice, and roasting a large fish. She, seeing a number of famished fellows thus unceremoniously intruding, was in no way disconcerted, but forthwith placed them before us, which fare we attacked with a violence that explained more than words the nature of our necessities; and whilst making the dainties disappear magically, some plantains were set before us, with which, at length, we appeased our appetites, and then condescended to inform our fair entertainer and the rest of the villagers, whence we had come, and whither we were going.

The hills about this place are of such easy ascent, that they rather seem artificial than natural productions. The climate is said to be

mild, and agreeably suited to a great variety of fruit trees and esculent vegetables. The spot about the village is verdant with groves of tamarind and mangoe trees, and strowed in every direction with deserted houses, all in a state of delapidation. About here I met *Dolichos* with downy leaves and pods; the thorn apple, *Datura fastuosa*, with red stem and bearing purple flowers, striped with deep purple inside; the sensitive or timid plant, *Mimosa pudica*, with prickly stem and red flowers; *Celosia cristata* and two species of prince's feather.

23rd January.—Started at day break, and passed principally through trees composed of *Careya arborea*, *Sapindus rubiginosus* and *Lagerstrœmia* for five miles when we came to Pyinnmah village—on the Dat-choung on the Oakkan side—when we met ten or fifteen men with six carts laden with timber, and on being questioned by us, they stated that they were engaged by one Nga Shoay Phoo, the nephew of our forest Goung Phogway, to bring the timber across the country from the Oakkan forests, and that they had already carted upwards of fifty logs down to the stream. After pursuing our way in a southerly direction, we bivouacked near Kinpathce village on the Magayee stream.

The Magayee winds sluggishly between high banks covered with a kind of sugar grass, and probably *Imperata cylindrica*, from which spot lofty trees *Antidesma paniculata*, *Bombax pentandra*, *Cassia sunatrana*, *Careya arborea*, and *Inga bigemina* met overhead, and formed an agreeable shade from the noon day sun. It was just such a jungle as would have been considered good tiger cover in Bengal; and yet here not even the chirp of a bird broke the perfect stillness, which is one of the most striking peculiarities of this place, and which often exercises a painfully depressing influence upon the spirits. Nevertheless, as the sun glanced through the thick foliage, the effect was certainly pretty, and there was a novelty in the style of peregrination which rendered it full of interest. We passed by the smouldering embers of a camp-fire of our party who were sent from Oakkan village; and shortly afterwards the guide pointed out to us a large tree of *Ficus cordifolia*, which is very much respected by all the wood cutters; every native that passes by often hangs offerings on it to propitiate the invisible Nât not to be struck down by Tigers.

We examined the Magayee forests. The face of the country, the soil and produce, have nothing remarkable to distinguish them from those already described. They, however, contain upwards of, I should say, two thousand five hundred full-sized, and four thousand undersized

standing Teak trees. The most common trees found here were two species of *Terminalia* (*T. bellerica* and *T. violata*) and *Inga xylocarpa*. Two miles from Kinpathoe village the hills were of easy ascent, but we were informed that in the flat country, about Phalone village, in the neighbourhood of the marshes and stagnant waters, it is subject, as in Yindike-quin, to intermittents. The district of Magayee is ramified by a number of creeks. The chief are Kayoo, Thanat, and Thabyew, but the mainstream Magayee is obstructed. To remove the obstruction but a small outlay is required, and from the hard and solid nature of the bank, any improvement that might be made in clearing the bed of the creek, would be of permanent duration, and not likely to be again required for many years to come.

24th January.—Left our encamping ground at day break, and reached the depot about 3 p. m.

25th January, and three following days, we lay encamped.

29th January.—Left Yindike-quin before sunrise for Thakhanjee—a village situated on the Mazalee Choung—a distance of eight miles—route E. N. E., and sent our tent and baggage round to Phoungyee with the Madras Sepoys. We came into camp about nine in the morning. In our neighbourhood were two or three huts surrounded by trees of *Moringa pterygosperma*, while the situation of the village was pleasant, and commanded a charming view of the fertile valley and mountain range beyond. There is no sort of grain which might not be cultivated to advantage on the soil of this village, but the inhabitants are so engrossed with the culture of *Nicotiana tabacum*, that they think if paddy sufficient for their own support be cultivated, they do enough. There were, formerly, extensive Teak forests in Thakhanjee, but they have almost disappeared, or at least, have been greatly diminished, partly by toungya cultivation, and partly by the unlicensed use of the axe.

30th January.—Examined the Mazalee forests. The country from Thakhanjee and upwards is very picturesque and well timbered with lofty trees of *Dalbergia*, *Careya arborea*, *Rondeletia tinctoria*, *Lagerstræmia*, &c. &c. *Cassia sumatrana* is very plentiful here, whence it has acquired the name of Mazalee; Mazalee being the Burmese name of *Cassia sumatrana*. The disposition of the trees here, however, would leave an impression on the mind of the traveller that it is an untrodden wilderness. We had to ascend over low hills of laterite on the right bank of Kya Choung—a branch of the Thanat one of the tributaries of the Magayee—our way being impeded for a mile and more by bamboo jungle, when we descended into Kyoukpasat, where we were compelled to leave

our ponies in charge of four coolies, and scrambled over the rocks for a short way, and following up the course of the chong for about a mile, we ascended its right bank through mountainous tracts, the summits of the hills being covered with Teak, associated with other forest trees already described, the dimensions of which were gigantic. Their magnificent proportions were better appreciated from being free of bamboo trees. Here and there *Nux Vomica* reared its head, and from its unusual size in this place, entitle it to a position among the forest trees. After several ascents and descents, we found ourselves in Kyouk-pasat forest, in getting up to which we had our shins scarified and bruised from the rocks. The Teak found here was not continuous, but in clusters of seven or eight, at distances of two or three miles. From the highest point of the mountain range we observed teak growing on the south side of the ridge, but on the north none were to be seen. We returned to our camp about 2 p. m. In this day's excursion, I met with *Tabernaemontana recurva*, *Agaveia coccinea*, *Cycas circinalis*, *Pothos officinalis*, and the creeping *Bauhinia* with large leaves, and to these may be added the following found cultivated: *Pandanus odoratissimus*, *Bixa Orellana*, *Andropogon Schenanthus*, and *Carthamus tinctorius*.

31st January.—Before sunrise we left the village, and ascended the bed of the Mazalee chong, wading through water for three miles in an Easterly direction. When we came to Toung-tan chong, one of the branches of the Mazalee, descending in a S. E. direction from the Yomah—we followed its course, but found its bed rugged and almost impracticable to ford. Compressed between overhanging banks, the stream up which we had to struggle fretted and foamed within its narrow limits, lofty trees of *Pentaptera* and *Careya arborea* met overhead, and flung their broad dark shadows on the turbid water, while the giant roots of the Teak were hanging from the undermined bank, or were twisted and contorted like little writhing snakes in the clayey soil. Sometimes we came across boulders of rock, a sort of rocky barrier which formed a small waterfall, and a few scattered sunrays struggled in and played upon the glittering sprays. The bed of the stream was not exempt from pools; they lay dark and silent, and looked so deep and still, that we were obliged to clamber up the bank to avoid them. At last, to our great satisfaction, we left these gloomy recesses, and taking a S. E. direction, we crossed Nghet kyee-chong, another branch of the Mazalee—and commenced boldly to scale the steep hill side, which we did for three miles. No sooner, however, did we, by dint of most frantic exertions, succeed in driving or pulling our ponies after us, than a cow belonging to Dr. McClelland,—brought for the purpose of

supplying us with milk during the tour—was pitched head over heels down the precipice. Fortunately it was not very steep, so that the velocity of her descent was not great, nor the injuries she sustained much or serious. We had, however, some difficulty in reinstating her on her legs, as she was somewhat stunned by the fall, and seemed cautious.

About 3 p. m. we crossed the Yomah, from which the stream of Wah—one of the tributaries of Phoungyee—looked like a little silver thread; we got up to it, after having pursued a winding path, and arrived at the confluence of Sooboke, the bed of which was dry, but grooved by timber recently dragged along its course by buffaloes; following up the Sooboke to its source, we found it to terminate at a steep rock of precipices over which timber was apparently slid into the chong, and as we ascended these, the dwarf jungle gave place to Teak and forest trees of various descriptions, amongst which I remarked some splendid *Dillenias*, *Gmelina arborea*, *Conocarpus robustus*, *Kydia calycina*, and *Eriolena tilifolia*. I should estimate this forest to contain about three hundred full-sized Teak trees, some of which were observed to be surrounded by numerous seedlings,—but the quantity of Yathects (half grown trees) advancing to maturity were very great. A range of hills, with small valleys opening through to the rear, run down at an average distance of three miles. Most of these hills present a rich soil to the summit, and all would furnish, I should think, excellent land for the cultivation of *Morus Indicus* and *Gossypium herbaceum*. The country between these hills and the village of Wah is very diversified, in some places undulating, in others level with open plains elegantly wooded with trees of *Sapindus rubiginosus*, *Careya arborea*, *Antidesma paniculata*, *Lagerstrœmia regina*, *Cynarus speciosa*, &c. The soil in the plains is generally excellent, being a fine rich mould with a substratum of clay. We reached Wah village at sunset. It contains about twenty houses grouped confusedly and surrounded by bamboo bushes. The stream which runs by, and the village itself derive their names from these plants, in consequence of their growing so thick on the banks of the chong. Between the bushes were suspended fishing nets and long lines, from which hung rows of fish which were being cured. Two dilapidated bamboo huts indicated the former residence of Phoungyees, but they evidently had not been tenanted for many years, as they were quite in a ruinous state. The villagers taking us for dacoits, came out in a body armed with daks and spears, but on being informed by me who we were and what our business was, they greeted the information with hearty guffaws. It might have turned out a very serious affair had I not explained it in time.

We had been prepared to meet with great difficulties in this day's journey across the Yomah, some of the men of Thakhanjee village having asserted that it would be quite impossible to get the ponies along; but, as is generally the case when expectations are raised, the reality falls short of it; and having pictured to ourselves something tremendous, we were greatly surprised by the ease and comfort with which we performed our journey.

The rocks lining the Teak forests on both sides of the Yomah are indurated or basaltic slate clay stratified in their beds, with an indurated basaltic kind of thick slaty bituminous sand-stone which disintegrates in a concentric manner, the whole usually much inclining or presenting every degree of inclination from 10° to 35° and 45° , and sometimes vertical. These strata have been thinly raised at various angles of inclination from beneath a deposit of laterite, forming the Yomah hills, and along their flanks the first elevation one comes to is laterite, which is folded, as it were, round the base of the mountains, forming a hilly belt of from fifteen to twenty miles broad. It is in this hilly belt of laterite that teak first appears, but attains its full size and perfection only on the higher ranges of slaty rocks where the soil is hard and dry grey clay, reposing on fine pulverised fragments of slate into which it passes, and which in their turn, pass into the slaty rocks above described. When one has seen a teak forest, he has seen all; they are almost all alike, only differing in the extent to which they have been worked, and the size and number of the trees.

1st February.—Ou-lha-baw, the head man of the village, in order to make reparation for what he considered an insult offered to us yesterday, turned out the men and women for our inspection, who came trooping out much to their and our satisfaction. At first, the female portion kept at a respectful distance, and tittered greatly among themselves, placing themselves behind one another with a great affectation of coyness. When, however, they saw that presents of Coriander comfits, or what they call Tsagalay ou,—were to be obtained by a nearer approach, they crept stealthily and timidly forward within reach of the prize, when they seized it with avidity, and rushed back triumphantly. At last we were surrounded by a galaxy of village beauties, and at their request showed and explained to them our pocket compasses. One of our Peons who had well provided himself for the tour with needle and thread, soon became popular—at least the favorite man, at the expense of his supply. At last the shades of evening and the expense of what was due to the headman of so much charming pro-
und admiration, we parted with mutual regret.

The floor I laid upon last night—for we had no beds,—seemed unusually hard, and there was either a piece of wood under my hip, or a lump under my shoulder, or a discomfort of some sort, that kept me awake for hours, until, overcome by excessive fatigue, I was gradually lapsing into a state of unconsciousness when the heavy tramp of a person walking at my ear roused me with a start, and I gazed into the black darkness with bewildered senses, not knowing what to expect. I was soon relieved to some extent, for Mr. Bernard our forest assistant appeared, rifle in hand, and whispered to me that he was preparing to fire at some large animal which had disturbed his rest by snuffing at the bamboo wall where he lay. Whereupon I also loaded my musket and watched with him with some curiosity,—rather glad of an excuse to lie awake since sleep was not tempting. Presently a heavy tramping accompanied by no less heavy breathing slowly approached, and in a state of intense excitement we peered into the obscurity, until we could indistinctly discern the form of a large animal, which we were on the point of giving a warm reception to, when a shout of laughter from our Jemadar cooled our valor, and revealed to us the mortifying fact that we were about to display it on a tame buffaloe, which had strayed from its shed, and whose curiosity, excited by such unusual intruders, led it to pay us a midnight visit, a liberty which very nearly cost it its valuable existence.

2d. February. On getting up this morning, I found my Bucephalus in want of grooming, an operation which the poor creature had not enjoyed since I left Rangoon; and the groom was directed to perform it at once, preparatory to our proceeding to Wahnet village. The animal consequently was very spirited on the journey. I think there is no exercise so delightfully stimulating and exhilarating in its effects on the spirits of men as that of riding a good pony. A brisk gallop, that sets the joyous blood coursing through every vein and artery in the system, seems to confer a new sense of power on the rider, who feels as if he had imbibed in addition to his own awakened energies a portion of the strength and vigor of the noble animal he controls. We left Wah village at 8 a. m., and reached Wahnet at 2 p. m., our route being due N. Wahnet village is situated on a choung of the same name. We had to travel to it for two miles through a deep forest on the left bank of the Phoungyee, when we reached a lake, a natural sheet of water, of a serpentine form, surrounded by long grass, about a mile in length, four or five hundred yards in breadth, and having high ground between it and the main

stream. We then crossed the Phoungyee which runs here east and west—and on the opposite or right bank came to Mway-nee village. Our ponies by this time appeared to enjoy the exercise as well as ourselves, for we gave them their own way, and we got along very pleasantly together,—now walking a little, then for a short time riding and jogging on at a trot, and when a good road presented itself, getting over the ground at a gallop in tolerable style. The cool clear and refreshing atmosphere imparted a briskness and elastic buoyancy to the animal spirits, while revealing with great distinctness the outline of the magnificent mountains of Wahnet valley. We reached camp about one in the afternoon, the latter part of the way being over broken ground, covered with rattans and bamboos. But the nature of the country close to Wahnet village is extremely rich, with a thick luxuriant pasturage, an extensive plain skirted and divided by strips and patches of wood, and covered here and there with plants of *Malra cuneifolia*, *Grewia floribunda*, *Æschynomene paludosa*, *Xyris indica*, &c., &c. The scene on the whole is undulating paddy land slightly timbered, and intersected by Wahnet and its tributaries. On their banks I collected the flowers and leaves of *Acanthus illicifolius*, *Pontederia vaginialis*, *P. dilatata* and *Ardisia humilis*.

We met few travellers on our journey this day, except the peasantry going to their toungyas in the morning, a singular feature which the stranger can scarce fail to observe in almost all the villages of the Phoungyee valley, and which struck me as a very characteristic one, is the air of quiet and stillness that reigned almost every where. This pervading influence is so remarkable, that even in villages containing a pretty large population, I have often thought they were deserted. Even the dogs appeared to conform to this prevailing tendency, wearing an air of dejection utterly foreign to their nature, and despising apparently the fun and gambols which distinguish the race in other districts. They also appeared to me to have utterly abandoned the usual dog demonstration, tongue or language—indicated by barking, whether out of contempt for the want of gravity implied in the act, or a fear of disturbing the general tone of quiet, it is hard for me to pass my judgement, although the latter seemed the more probable theory. The Goung-gwai of the Wahnet forest informed me that they are obliged to observe this prevalent custom, because, since the war broke out, they had been constantly annoyed by dacoits.

3d. February.—Left Wahnet village at day-break, our route being N. W. for six miles, through forests and swamps. About two

miles from our last encamping ground, we crossed Thit-khouk—a branch of the Wahnet, and after a fatiguing journey, consisting of short ascents and descents and beds of nullahs, we bivouacked amidst the Teak forest. The Wahnet forest in its general aspect, differs very much from Wah, inasmuch as it is not open. I should estimate it to cover an extent of about eighteen square miles. The lowest part of the original forest commenced six miles above the confluence of Wahnet choung with the main creek, but this tract is now entirely denuded of teak trees. It however abounds in other species of trees, such as *Inga mylocarpa*, *Careya arborea*, *Garcinia Coua*, *Elæodendron integrifolia*, *Diospyros melanoxylon*, *Pterospermum aceroides* and *P. subcerifolium*.

4th February.—As we entered upon the higher sections, we came upon several patches of forest containing teak trees of large growth, and thinly scattered along the banks of the stream. A few miles higher up, and as we ascended the source of Wahnet, we went over a succession of high ridges, upon which there were an innumerable quantity of half grown teak trees capable of yielding large supplies of timber under a good system of conservancy.

5th. February.—Returned to Wahnet village, and on our way back I gathered the plants of the wild *Loraa*, *Passiflora fatida*, *Jasminum syriacæ folium*, *Clitoria ternatea*, *Justicia picta*, *Ludwigia parviflora*, and a species of *Combretum*. All of the above were found in flower, in great profusion, and dazzling with beauty, the pinnacle and crown of Nature's life.

6th February.—Returned to Wah village, and found two Karens resting under a clump of mangoe trees, who attracted our attention from the peculiarity of their attire. One was in the costume of a Burman; the other had on a dingy, ragged alpacca coat. They were ill-favored and of a sinister countenance. Our guide rode up and addressed them. They had a large quantity of the Chameleon beetle (*Buprestis*), and our Burman Peons burned with a desire to make purchase of the insects, because, as the natives say, when a Phoungyee dies his soul leaves the body in the form of a butterfly, and afterwards changes into this species of *Buprestis*. Against so religious an object nothing could be urged, the bargain therefore began in earnest. The Karens at first valued their property at three rupees. Our Jemadar, who is a native Christian, looked contemptuously on the barterers, and denied their worth at that rate, but said they might be worth four annas. The Karens seeing that the Peons were not to be taken in,

offered the lot for [redacted] [redacted], upon which the latter offered eight, and stated their determination not to gratify themselves by the purchase at more. The transaction terminated; the Karens kept their property, and the Peons their money.

7th February.—Left Wáh village for Phoungyee town which we reached after a march of six miles. As we came up the main creek, we observed at some distance from us, a large object being towed by two men. It approached, and we then discovered it to be a large bamboo raft having a hut upon it, and a third man steering. At the novelty of the sight we made enquiry, and were told that this was the manner a family or families changed their location, taking with them all their bodily and worldly substance to some more favored vale.

The face of the country about Phoungyee town is low, flat, and marshy. Advancing on, the eye is entertained with a gradual swelling of hills which become larger in proportion as one advances into the country.

I may remark that in all parts of the southern forests (on the Lhine side,) they are generally speaking, wooded with almost all kinds of timber, but, whether from some fault in their nature or in the climate, or the soil, or in the indiscriminate cutting, they yet produced no very fine timber in this district that deserves to be mentioned. It may also be observed of the teak timber here, that it is not so good for shipping as that of the Lhine. The timber is less compact, and rives easily, which property, as it renders it less serviceable for ships, makes it more useful for staves and scantling for house building.

The soil along the Phoungyee choug, and from eight to twelve miles into the interior, is generally a rich clay, (which is manifested by the luxuriance of the grass; and the abundant supply of water) adapted to the various purposes of agriculture. From thence to the [redacted] the soil is light, sandy, and of an inferior quality, and is not cultivated, the inhabitants depending on the exportation of bamboo to [redacted] for rice, and other articles of nourishment. But while Phoungyee town offers so many advantages in an agricultural point of view, it is by no means devoid of attractions to the tourist.

The town itself has now fallen into comparative insignificance, even [redacted] of penury and desertion, altho' its site and aspect, and the [redacted] progress of delapidation and decay, there are ample [redacted] of its having formerly enjoyed no inconsiderable portion of prosperity and influence. Though called a town by the Burmese, in many points Phoungyee has sunk within the limits of a country

village. It has scarcely sixty houses. ~~But~~ from its remarkable position, it presents a rural scenery very seldom met with in this valley. Without any one striking feature, the view, especially in its first approach, abounds in novelty and variety, and produces, throughout its least details, a pleasingly natural and picturesque effect. The stream Phoungyee on the other side by way of combination, appears to break suddenly on the eye, passing rapidly, and giving activity to a great many bamboo *phoun-thamas* or raftsmen as it glides along its wayward course. Often in its career, it assumes a number of strange, fantastic forms, whirling in eddies, foaming or bounding over temporary obstacles composed of drift trees, till it ceases its hoarser murmurs as it approaches the level of the plains about the town.

8th February.—Halted.—I was chiefly occupied in striking bargains with a Malabar travelling Merchant for articles of comfort which we sadly required, as we would not be able to obtain them at the head waters of Mahooya and Zamayee, whither we made up our minds to proceed. The merchant was reasonable in his prices, and I laid up a stock of articles of utility and comfort. There are few sensations in the experience of a traveller of more enjoyment than that of preparing for his journey. There is so much of anticipation in it; so much of speculation as to what is likely to be required; such an uncertainty attending every purchase; such discrimination required in making a choice of the most available articles, and, in fine, in packing them up in the smallest possible compass, that one feels as it were an earnest of adventure in the wild life which he is about to lead; and it almost seems as if the first step on the journey had already been made when the preparations for it are completed.

9th February.—Halted—Ou-mhone, the guide engaged to take us across the country, was an athletic man, a compound of *mokoso* (hunter) and massive force. Noticing among our baggage a fowling piece belonging to Dr. McClelland, he, after ceremoniously apologising, craved permission to examine it, and, when withdrawn from the bag in which it was usually enveloped, took it into his hands, arighted it, brought it in military phraseology "to the present," ran his eye along it, and scanned it with the contemplative *amorosa* of a connoisseur from butt to muzzle. He then courteously, but with a marked interest, begged leave to inquire was the *Thittaw-woon* sportsman? Evidently gratified with my reply in the affirmative, he assured me there was no want of wild dogs (*Canis rutilis*), Chevrotain *adulte*, *Rusa Equina*, and wild elephants in our way to-morrow.

10th February.—Early this morning we left Phoungyee, direction N. for a quarter of a mile, when we crossed the main stream, ascended its left bank, and passed through Pankha-bingah, a deserted village. Our route from this was N. E. for two miles to a place called Kyet-too-ywai-quin, so called because it contains a great number and variety of Parraqueets (their generic native names for all are Kyet-too-ywai) such as *Psittacus barbatus*, *P. cubicularis*, *P. Alexandri*, *P. narcissus*, &c.

This place is studded with undersized trees of *Careya arborea*, *Rondeletia tinctoria*, *Antidesma paniculata*, *Inga xylocarpa* and *Lagerstræmia regina*. The two last named species I found widely scattered, and must be considered scarce.

From this small forest we took a northerly route, and the approach to Thabyew choung—a branch of the Mahooya—where the ground opens to the right, and the hills rise far beyond, is extremely beautiful, and its foreground, where the tufted bamboos and a species of *Alpinia* grow luxuriantly, is most sweetly oriental. We discovered this place to be infested with wild elephants from the extent and number of footprints. About one in the afternoon we bivouacked on the dry bed of Wah-say-lai choung.

11th February.—The approaches to Mahooya are most picturesque and interesting to a stranger's eye. Four miles from Wah-say-lai the tourist beholds a most majestic teak forest; its aspect has something startling, which strongly impresses the imagination. Deep solitude and unvarying shade, seem to throw an unwonted stillness over the scene, nor can they be contemplated without a feeling partaking of their gloomy sway. The waters of the Mahooya are only observable by glimpses through the nearly impervious foliage with which the teak and its companions overshadow it. Its banks, indeed, cannot boast the same agreeable views and fertility which distinguish those of the admired Phoungyee, but they are more bold and romantic.

On examining the forest, I found it to contain undersized teak trees and very few full grown, in company with *Melicoca trijuga*, *Inga xylocarpa*, *I. bigemina*, *Lagerstræmia regina*, *Careya arborea*, and *Dillenia augusta*; also the following were observed of small size, widely dispersed, and not very plentiful, viz. *Diospyros melanoxylon*, *Strychnos nuxvomica*, *Grewia floribunda*, *G. Hookerii*, *G. spectabilis*, and *Walsura piscidia*.

Four miles from this spot, the road led us through narrow valleys, with hills on both sides casting a deep shadow, enriched

with teak trees, and extending for many miles along the N. E. side of Phoungyee town, with the prevailing trees of *Careya arborea* and *Inga bigemina*, which often spread a thick large canopy over our heads; while along the depths of the valley which we found increased in beauty every step we took, ran a clear brook called .Nayôke-Koun, the waters of which made their way over the rocks, and refreshed my ear with their murmurs, as much as my eye with their freshness. On the bank of this stream we bivouacked. Our guide was not slow in making a havoc on a small scale among the giant squirrels (*Sciurus giganteus*,) and brought in quantities of meat; our peons busied themselves with the fires, roasting and stewing; the ponies eased of their burdens, rolled in the grass, or grazed at large about the ample pasture ground; those of the party who had no call upon their services, indulged in the luxury of perfect relaxation, and the camp presented a picture of rude feasting and revelry, of mingled bustle and repose, characteristic of a pic-nic party in the suburbs of a civilized country, but without the attendant fairies and luxuries.

12th February.—We travelled for four miles in a Northerly direction, and crossed a series of mountain ridges, some of them rising almost into perpendicular cliffs towering above the dark stream like the ruined walls of some gigantic fortress, covered with Teak of all sizes, and presenting rich forests of it. We then followed the course of the tributaries of the Mahooya to their source, and descended into Thanee Choung, one of the branches of the Zamayee or Pegu river. We bivouacked near a small pool of water issuing from a rock. Teak appeared to be plentiful on every side, and of good dimensions. Instances have occurred of trees measuring from eighteen to twenty feet in circumference, and four feet from the ground. This place remains in a very savage state, uninhabited jungles and deep water courses; surrounded by pathless forests, and covered by timber trees of various kinds, and of bamboo that the sun's rays, in some sections, could not penetrate through their foliage, and these are so thickly interwoven with *Calamus* and *Licuala longipes* that they appear spun together, and render the woods almost dark.

In the day's march we saw a great many deer (*Chevrotaia adulta*), a sight so unusual in this part of the country, that at first I doubted the evidence of my senses. We tried by every means to get within shot of them, but they were too shy and fleet, and after alternately bounding to a distance, and then stopping to gaze at us with suspicious curiosity, at length scampered out of sight.

13th February. We were half tempted to put off our departure for the day, for the purpose of inspecting two large teak trees measuring about thirty feet in circumference, and commonly known as Meung-na-mha (brother and sister) by the Burmese, and which our guide described as the wonders of the forest. It so often happens, however, that the traveller is misled by the extravagant description, by foresters, of the marvels of their country, that we were scarcely disposed to risk the expenditure of our valuable time upon the word of the guide, though it is possible we may have missed a discovery which may rejoice the heart of some future traveller. It was late before we were *en route*, and proceeding by the bed of the Choung—which was for two miles a steep descent, when we came to its confluence with the Pymmah Choung. It was here that we observed the trees of *Dolichampia pomifera*, *Canarium geniculatum* and *Mullingtonia simplicifolia*, which were never met with in the other forests we had explored. The last named tree is deserving of notice, and I believe it has never been properly described. It is fifty feet in height, and ranging from four to six feet in circumference. The wood unites the valuable properties of weight and strength. The Burmese say that it is the same as the *Juga xylocarpa*. If this is true, it would be very valuable for those parts of machinery where weight is of no consequence.

Having followed up the Pymmah Choung for two miles in a Northerly direction, the descent became gradually more gentle, and then turned to a N. E. direction, still following the course of the Choung, the bed of which was sandy, and the banks covered with reeds which encroached so much on it, that we were obliged to leave it and ascend its left bank, and after a journey of one and a half miles, passed through a forest of *Careya arborea*, *Rondeletia tinctoria*, *Ancestrulobus carnea*, *A. mallis*, *Mangifera attenuata*, *Cassia Sumatrana*, *Diospyros melanoxylon*, *Pierardia sapota*, *Gmelina arborea*, and two species of Iron wood. Teak appeared to shun this locality. This forest, however, had not always been equally destitute of teak, as was made evident from the trunks of trees which I met with, some still standing, others lying about in broken fragments, but all in a fossil state, having flourished in times long past. In these singular remains the original grain of the wood was still so distinct that it could not be doubted they were the remains of teak trees. Turning sharply a green bank about ten feet in height, covered with granite boulders, we now entered a pretty deep and rapid stream, which from its size and volume, I at once recognised as the Zamayee itself. It would be difficult to describe my feelings of satisfaction as I saw several bamboo

rafts being swept along its waters, or my surprise at finding that even here this magnificent river had an average breadth of eighty feet. The banks of the river were here of alluvial shores covered with a luxuriant growth of *Zizyphus jujuba*, *Limonia alternans*, *Artocarpus integrifolius*, *Cicca disticha*, and *Schleichera*, and betokening great fertility of soil. We then pursued our route to Zountoo village, and in our way, we fell in with a party of amazons. They did not see us approach, and when we were within a few yards of them, the guide made a yell which terrified them to such a degree that we were disposed to be annoyed with him for his piece of mischief. We had ourselves, under his tuition, become great adepts in the art, when we found any of our party astray, and this exercise of the lungs derived additional piquancy from the fact that the possibility of our being "peppered," by the Burmese in sober earnest was by no means remote, especially when we had been assured by Mr. Raphael, a forest assistant, that about two months ago he was roughly handled by them and nearly lost his life. The women whom we had so unexpectedly startled, were out upon a kind of general catering expedition, searching along the banks for sand lizards (*Lacerta*), and visiting the mouths of sluggish rivulets which enter the river, and which we found barred near the outlets with small bamboos fastened close to each other—so that fishes are able to ascend, but on descending they are arrested by the poles of the dam forced against them.

We came to Zountoo village at one in the afternoon. The village may be described as an assemblage of huts. In an agricultural point of view its capabilities for two or three miles around are very great; the soil is every where fertile, and its natural pastures afford great facilities for the rearing of cattle. Notwithstanding these advantages, the inhabitants have allowed the greater portion to lie fallow. As beheld from the village the forests salute the traveller as he ascends the choung with a variety of verdant and secluded valleys. Many a melancholy tale is associated with the name of Zountoo. The old, young, and beautiful have made their graves beneath its shades from sheer starvation; hopes, which had revived at the prospect of its bright skies, have been cruelly blighted even while those skies retained all their glory; sad as are the recollections with which the eye wanders over the flattering beauty of its scenes, Zountoo is not in itself a place to nourish melancholy; nature seems as if she is there beginning to assume her immortality. The village was once on a time a densely populated town, but can lay no claims to antiquity. Its ori-

gin is obscure, and its history does not stand sufficiently prominent to reward traditional research, its claim to any thing like antiquity resting on the too clear evidence afforded of the ravages committed by the Burmese in 1750.

During the Burmese sway after that period, this locality was in a pretty flourishing state ; the falling off may be dated from the last war, and from the desolating effects of dacoities from which it has not as yet recovered, and to them may be mainly attributed the neglect of agriculture and the death of a large number of the inhabitants, as I said before, by famine. The village was over-run by gangs under Moungh Phoo-goung. This chief had lived in the country long prior to annexation, and therefore had a perfect knowledge of the intricacies of the jungles, and of the numerous fords of the Pegu or Zamayee choung and its tributaries, which enabled him to cross and return to his haunts without molestation, and the inhabitants were so intimidated by the ferocity of his attacks on them, that they could not be brought to act together against him and his followers. Hence the impunity of his robber excursions.

14th February.—We left Zoumtoo at day break and pursued a path for two miles in a northerly direction, passing over excellent paddy land which was said to have been under cultivation in the Burmese time, but now abandoned. Pursuing a N. W. direction for two miles further, we crossed to Kodoogwai choung, ascended its right bank, and then entered on the higher Kodoogwai forests. The scenery and objects, as we proceeded, gave evidence that we were advancing deeper and deeper into the domains of savage nature. The foot-path—if the glade or opening in the forest could be so called—led in a straight line, and we proceeded with a proud disdain of obstacles and difficulties, into the valleys and up the sides of the steep hills, without one effort by sweep or turn to avoid either. We were thus led over the side of a hill, down the steep descent of which the trunks and arching boughs of the trees of *Eugenia pulchella*, *E. myrtifolia*, *Cassia Sumatrana*, and *Barringtonia speciosa* might be seen in long perspective, forming a regular—what I would call alley, filled with a kind of dim and misty light. At the end of the descent, however, the trees in some degree, broke away to the northward, and gave way to a boundless forest of teak of excellent growth, intermixed with other trees, the eye being kept more and more animated by the sight of a great number of *Rusa Eguina* scattered on the green declivities, and cropping the rich bamboo trees ; the whole scene realizing, in a manner, a vast pastoral country. Besides the *Rusa* deer, I saw *Cervus frontalis* ; nothing can surpass the delicate and elegant finish of its limbs, in

which lightness, elasticity and strength are wonderfully combined. All the attitudes and movements of this beautiful animal are graceful and picturesque, and, I think, a deserving subject for the fanciful uses of the poet. Its habits appeared to me to be shy, capricious, and quick to take the alarm, and it bounds away with fleetness—like gossamer before the wind, that defies pursuit.

Amidst the teak forests, I remarked a steep hill rising suddenly before us, which seemed at its original formation, to have started up so abruptly as to have shaken a part of the primeval forest from one of its sides. The other side was clothed to the top with tall trees of *Garcinia Cowa*, *Swietenia chiltrassee*, *Terminalia chebula*, *Conocarpus robustus*, *Millingtonia simplicifolia*, *Connarus speciosa*, &c. Over the shoulder of this hill, just between the part that remained wooded, and the part which, sloping down to the forest below—lay at the distance of several yards, either entirely bare or merely covered with scattered *Calamus arborescens*, and wild plantain trees.

The lower part of the Kodoogwai forest, as may be expected where a great facility is afforded for the removal of timber, has been greatly overworked, and is now almost exhausted. We continued for about four miles to ascend the same overworked forest when we attained the summit of the ridge, which did not appear to be above four or five hundred feet high. We then descended on the opposite or north eastern declivity for about three miles, and came across another small teak forest containing about one thousand trees, and encamped on the banks of Kine Choung, a tributary of the Shoay-loung.

15th February.—We left the shady banks of Kine Choung this morning; our route was among hills which were of a rugged aspect. They were thick with dense and gloomy forests of bamboos and other jungle trees, teak occurring only to a small extent, and, in some places, cut up by deep and precipitous ravines, extremely troublesome to the ponies. Sometimes we had to follow the course of a brawling stream, with a broken rocky bed, which the shouldering cliffs on either side obliged us frequently to cross and re-cross. For some miles we struggled forward through these savage and gloomy wooded defiles, when all at once, near Shoay-loung Choung, the whole landscape changed as if by magic. The rude hills and rugged ravines were softened into what I would call beauties. Shoay-loung was observed to wind through forest herbiage, and sparkling and murmuring over a gravelly bed, and its course being marked out

by serpentine lines of *Imperata cylindrica*, with flowers two or three feet high, which fringed its bank: the whole forming a verdant scene, and deriving additional charms from being locked up in the bosom of such a hard-hearted region. We bivouacked near Shoay-loung Choung about two in the evening. Nature, that wore the day before her loveliest, had now put on her angriest aspect. A more glorious to-morrow was never promised to man than the sun shadowed forth as he went down at evening behind the Pegu hills. There was not a cloud to dim his brightness, while the transparent atmosphere and blue sky seemed dreaming of anything but clouds and mists. But who can foretell the whim of a Pegu sky?

At the time I speak of—about four in the evening or two hours we encamped—the firmament was full of clouds which veiled the distant giant peaks around, and the yellow light which had struggled for a time to keep its place in the heavens was now totally obscured. Large dull masses, as hard and defined as if formed of some molten metal, rolled slowly along the heavens, while across them floated far more rapidly some light fleecy vapours of a whitish grey. From the far extreme of these clouds was seen pouring in long straight lines the heavy shower—in some places so dark as totally to obscure every thing beyond; but in other spots so thin and clear that through the lines of rain the eye caught the prospect of a bright and sunshiny country over which the clouds had not yet extended themselves. Each moment seemed to add something to the gloom of the sky, and the rain poured down as if that were its sole business for the evening. It was rather unpleasant from a sweeping wind which dashed the rain into our faces by pailful. The most powerful emotion excited in our breasts under such circumstances was a pining after shelter, though it were the shelter of a dear hunter's hut. A general recklessness seemed to pervade our party, as if life was momentarily becoming less valuable as the chances of passing a rainy night in the woods without shelter increased. We sallied forth to Kamabin village with our hats well pressed over our foreheads to keep off the wind, our clothes containing a much larger quantity of water than of cloth, and impeding our progress from the weight. At length the bark of a dog sounded cheerfully on our ears, and soon after human voices inspired us with hope. Their owners promptly answered our shouts, and directed us in a bewildered manner to the Goung of the village, furnishing us with a guide to his residence which we reached at last, utterly worn out and exhausted. Our host,

though wrapt in amazement at our appearance, did not let his feelings of astonishment get the better of his hospitality. He at once commenced the most active preparations for our comfort, by having many mats brought in and spread upon the floor. Nothing could be more acceptable than the repose which was thus afforded to the tired travellers immediately on arrival at their journey's end. We stretched our weary limbs, and watched the crackling of the sticks which fed a large fire, towards which we turned the soles of our feet, while our heads were pillowed upon our saddles. The thunder echoed through the valley as though it would rend the very mountains. The sluice gates of heaven seemed opened, and the rain swept in through the crevices of our miserable abode in spite of our utmost efforts to keep it out. We, however, thanked God for the shelter we enjoyed, when we remembered how nearly we were destined to pass the night in the forests, and how deplorable would have been our condition had we done so.

Some of our Pems, who had not yet enjoyed their evening's meal, ventured,—despite my remonstrances and warning of the displeasure they would incur from Dr. McClelland—to hint their ravenous condition to our host, and expressed a wish for a supply of cooked provisions. The intimation was received with a satisfied expression of countenance, and it was, I believe, about midnight, as I just awoke from my slumbers to bring up my journal, that our followers cloyed the hungry edge of their appetites.

We are now fairly out of the Teak forests. I cannot help bringing to my recollection that when in them, I observed as the sun descended, lights and shadows playing over the vast extent of hilly country which lay heaped in a confused mass before us. In wonderful and rapid variety I watched the night stealing slowly over valley after valley; the bright tints upon the hill-tops became gradually circumscribed until they disappeared altogether; but on the fantastic outline of the clouds was still painted a bright record, as it were, of his departed glory, until at last that too melted away, and the long and eventful day was over. It was indeed a recompense for all our toil to revel in such a scene, and then to look out for the appearance of the moon above the hills, and to watch her genial and silvery rays glancing and peeping into the dark recesses of the valleys, into which no Christian travellers but ourselves had ever penetrated. How long will it be before another party of Englishmen watch a sun-set from these forests, or cross the range of hills behind which the moon and sun arise? There

is not a country in the world more full of attractions to the tourist; every step he takes is over untrodden ground, a virgin field; every village he visits has remained heretofore unvisited by other than heathen, barbarous eyes. Almost every man he meets gazes with amazement upon what he has for the first time in his life seen—a *Kala*. The hammer of the geologist—save ourselves—has never tapped the hill sides, nor has its luxuriant vegetation been subject to the scrutiny of the botanist.

As we have bid good bye to the Teak forests, I think it will not be amiss to add a few remarks about those of the Zamayee.

The Pegu or Zamayee forests comprise two divisions, namely the eastern and western Pegu. These grand divisions are ramified by the Zamayee river. High hills, innumerable streams, plains, and valleys, distinguish both eastern and western Pegu. Many of the trees, besides Teak, are both ornamental and useful, such as, *Buchanania latifolia*, *Careya arborea*, *Barriingtonia speciosa*, *Melicoca trijuga*, *Dipterocarpus turbinatus*, *Cassia Samatrana*, *Pentaptera arjuana*, *P. glabra*, *Dolichampia pomifera*, *Ricinus dioeca*, *Juglans tricola*, *Castanea indica*, *Inga Xylocarpa*, *I. bigemina*, *Ancestrolobus carnea*, *A. mallis*, *Diospyros melanocylon*, *Gmelina arborea*, *Adenanthera pavonia*, *Acacia elata*, *Pterospermum aceroides*, *P. subacutifolium*, *Dillenia angusta*, *D. scabra*, *Odina Wodier*, *Connarus speciosa*, *Terminalia chebula*, *T. belerica*, *T. violata*, *Casuarina pentandra*, *Walsura piscidia*, *Semecarpus anacardium*, *Kydia calycina*, *Elaeodendron integ. rifolia*, *Strychnos nux vomica*, *Canarium geniculatum*, *Millingtonia simplicifolia*, *Conocarpus robustus*, *Eugenia pulchella*, *E. myrtifolia*, *Lagerstrœmia regina*, *Eriolana tilifolia*, *Grewia spectabilis*, *G. Hookerii*, *Sapindus rubiginosus*, *Rondeletia tinctoria*, *Pierardia sapota*, *Garcinia Cowa*, *Svietenia chikrassee* &c. &c.

I believe the above list embraces all the useful timber I found in the Pegu or Zamayee forests. They are all well suited for the various purposes of house building, and from the hardness and fineness of their grain, render them also valuable woods for cabinet making. But *Careya arborea*, *Melicoca trijuga*, *Pentaptera arjuana*, *P. glabra*, *Inga xylocarpa*, *I. bigemina*, *Lagerstrœmia regina*, *Sapindus rubiginosus* demand notice on account of their great strength, as they are adapted for ship-building, being as strong as teak. The Native names of these valuable trees I shall add according to their order: *Banbwai*, *Jobin*, *Htouk-Kyan*, *Oung-doane*, *Pyin-Kadde*, *Ten-yin*, *Pyinmah*, and *Saikchee*.

Another produce meriting attention is that afforded by *Bush*

anania latifolia and *Connarus speciosa*. They are very common and found in every direction. Their seeds afford a valuable sweet oil.

The next perhaps in importance is the *Dipterocarpus turbinatus*, which affords what is called wood oil. These trees are very frequent near the banks of Choungs and in dense forests.

Oding Wodier is scarcely less valuable than Teak itself, for its employment to Military purposes and house building. It is found in inexhaustible abundance, and is highly saturated with resinous matter, and yields the *Galbanna* of commerce.

Ornamental herbaceous plants, orchids, and ferns, are exceedingly diversified. The following are the selected ones.

The ornamental herbaceous plants, consist of *Impatiens Balsamina*, *Flagellaria indica*, *Osbeckia*, *Ludwigia parviflora*, *Minosa sensitiva*, *Begonia*, *Pontederia vaginalis*, *Melastoma malabathricum*, *Celosia cristata*, *Thunbergia*, *Acanthus illicifolius*, &c.

Orchids.—These are *Trichobolus oblonga*, *Pholidota articulata*, *Saccolabium retusum*, *S. rubrum*, *Eria obesa*, *Bolbophyllum*, *Dendrobium Pierardii*, *D. cretaceum*, *D. secundum*, *Aerides odoratum*, *Bolbophyllum Careyannum*, &c.

Ferns.—Of these, I only succeeded in collecting five different kinds, viz. *Lygodium scandens*, *Polypodium pertusum*, *P. giganteum*, *P. quercifolium*, and *Pterisgraminifolia*.

On the hills on the confines of Daway and Khadat, good teak is produced in great abundance. In the Taidaw range, timber of a still larger size is found. Timber of a similar description, and in considerable quantities, is found also in Monyogalay. Teak is not, however, abundant about the confluence of Monyo-jee with the Pegu or Zamayee stream, but is found in large quantities at its source. With regard to water carriage, the Pegu or Zamayee forests are singularly happy in possessing an easy and quick transportation by choungs.


16th February.—It was barely day-break when we began our march towards Htandawjee, a distance of eight miles. The morning was as clear and bright as if the sun were starting from the dark pavillion of night, to run his race of glory through the long course of the day. In our way we crossed several low ranges of hills running east and west across the valley. There is a fine wooden bridge for foot passengers, at the entrance of the village, over the choung of the same name.

The physical and geographical circumstance of this locality is a plain country, and its appearance is very various in different parts.

The land is, in general, naturally good and liable to submersion. The soil is nevertheless fertile, and produced, in the Burmese time, large quantities of rice which were the staple commodity.

The Pegu valley must have been very populous in former times. In traversing it, the traveller experiences a painful sensation; the uniform desolate feature it presents renders him more sensible of the destruction of the villages, and of the absence of their inhabitants. He sees before him nothing but the localities over-run with jungle; he advances, but the aspect is almost the same; and in the midst of this vast picture, almost without life, he is scarcely informed of the presence of man.

17th February.—Started at 9 A. M. The sky was all full of light, the air all full of heat, and the grand masses of high grey clouds that occasionally floated over the sun were saluted gladly for their shadow. Sweeping over the prospect—like the mighty and indistinct images of great things and splendid purposes that sometimes cross a powerful but imaginative mind, the shadows of the clouds were observed to move slow over the distant hills, fields, and jungle. Now they cast large masses of the woods into a dark and gloomy shade, and left the rising grounds, in some places, to stand forth in light and sparkling brightness. Now they floated soft upon yonder hills, spreading—as may be expected, an airy purple over each dell and ravine; while pouring on the Pegu plains, the bright orb of day lighted up the spires of Pagodas, Kyoungs, and hamlets. The sky with the sunshine that it contained, was all *Tabodwai*; but the aspect of every thing that it looked upon spoke of cold weather sinking fast into the arms of the hot season, or that the reign of the former was fast giving way to the acmé of the latter.

The road we had followed was a long grassy path for four miles, cut by the wheels of carts. As I looked down at the bottom of the slope over which it proceeded, I remarked some large white object lying amongst the long grass which fringed a little jungle stream. The distance was not more than fifty yards in advance, and thus attracted, I strode on almost unconsciously towards the spot. As I came nearer, the object which had caught my eye assumed the form of a horse, either dead or asleep, and to ascertain which I still walked forward till I stood close beside it, and found that it was the carcass of a cast horse, which had dropped apparently from exhaustion and loss of blood. A wound in the poor beast's neck seemed to show that he had been in conflict with a Tiger. 

nention this fact that strangers and persons, new to the country, might avoid such encamping ground as grassy fields, as accidents very often happen to natives who penetrate into such jungles.

After this we came upon the Zamayee river, and then our direction turned to S. S. E. for four miles, having passed through Letpangone village, situated upon the right bank of the Zamayee river, and consisting of from thirty to forty houses. We then entered the bed of the river, and descended its course for two miles in a S. S. E. direction, when we ascended its right bank near the site of an abandoned village with several fine Kyoungs (all deserted) and a pagoda. After travelling four miles more in a southerly direction, we reached Ait-zine-ga-nine.

There was no little curiosity excited in this quiet village as our unusual procession passed through it, and when we stopped at a Zayat to take up our quarters for the night, the villagers crowded inquisitively round to discover the origin of the visit. When they heard the route we had taken from Rangoon through the teak forests, we were overwhelmed with enquiries as to the nature of the country, the character of the teak trees, and its advantages generally as a district in which to work; for most of the inhabitants are anxious to cut timber under a letuhlat, so as to profit by the advance of trade, and are ever seeking information from Kareens, who, if they are personally interested, give them no more of their experience and observation than they can help, until they have established their own claims in an indisputable manner, and their descriptions are of course formed so as to meet their own ends. We were, however, impartial and gave a true account, which was most probably disbelieved. Ait-zine-ga-nine is a cheerful pretty place, and clean, containing about thirty inhabitants.

18th February.—This was a fine morning when we again put ourselves in motion. The sun had just risen, and the fresh, elastic air, driving the vapours of the night before it, had gathered together in the north a wide extent of dark clouds, streaked with the whiter mists that were every moment carried to join them by the wind; while over all the rest of the sky, the bright sunshine was pouring triumphantly, and flashing upon the diamond drops that the night had left behind on every spray and every blade of grass. At one in the afternoon we came to lower Zine-ga-nine situated opposite to the city Pegu.

Nothing can exceed in beauty and variety of aspect, the scenery

through which the tourist passes in approaching this ancient city, once the centre of Talien conquests. Green plains and Kyoungs stretching in the distance—the spires of Pagodas glittering through the stately trees of *Cocos nucifera*,—hamlets and gardens,—mark his progress through the fertile and luxuriant districts, conducting him to the city. Looking back, and far along the horizon, he beholds the distant hills of Zamayee, extending in a dim blue undulating line. The view of the Zamayee river makes a picturesque sweep round Pegu, the tourist proceeding on and making a bold turn of the river, then beholds the city itself, distinguished for its manufacturing and commercial spirit in former days.

The soil in the vicinity of Pegu and over the greater part of Zine-ga-nine district, is a black vegetable mould, which in the rainy season becomes soft, so that travelling is hardly practicable. When it becomes dry it cracks in all directions, and the fissures are so wide and deep by the road side, as to make a journey dangerous. The quantity of rain that falls, in ordinary seasons, is said to be considerable, and added to which the ground is retentive of moisture. The view of the country to the Sitlang river from the city is an extensive low plain, covered with grass in the dry season, and diversified here and there by the intervention of a forest of a mixed kind, composed of *Jaglus trieca*, *Careya arborea*, *Strychnos nux vomica*, *Butea frondosa*, *B. Superia*, *Dipterocarpus tubinatus*, *Diospyros melanoxylon*, *Dalbergia*, *Alnanthera paronia*, *Casuaria pentandra*, &c. Nevertheless, though abundantly interesting during the continuance of dry weather, this magnificent panorama is said to lose all its attractions as soon as the rains begin, when it is immersed, or rather inundated with water.

The plants cultivated by the inhabitants of the city of Pegu are:—

MEDICINES.—*Aloe soccotrina*, *Cassia alata*, *Croton Tiglium*, *C. polyandra*, *Agathotes Cherayta*, *Coriandrum sativum*, *Anethum graveolens*, *Arum odorum*, *Lepidum sativum*, *Mentha sylvestris*, *Zingiber officinale*, *Andropogon schœnanthus*, &c.

FRUITS.—*Citrus bergamia*, *C. acida*, *C. aurantium*, *Psidium pomiferum*, *Mangifera indica*, *Tamarindus indica*, *Artocarpus integrifolius*, *Carica papaya*, *Anacardium occidentale*, *Schleichera*, *Averrhoa Carambola*, *Elaeagnus conferta*, *Sandoricum indicum*, *Zisypheus jujuba*, *Merinda*, *Plaintain*, &c.

VEGETABLES.—*Batatas edulis*, *Dioscorea globosa*, *P. atropurpurea*, *Moringa pterygosperma*, *Cucurbita maxima*, *Trichosanthes anguina*, *Lagenaria vulgaris*, *Solanum Melongena*, *Cucumis sativus*, *Allium*, *Capricum*. & c.

GRAINS.—*Oriza sativa*, *Zea Mays* &c.

26th February.—It requires but a short stay at the City of Pegu to be convinced, that its annexation to the government of the East India Company is satisfactory ; and that the people enjoy immunities and privileges which they did not or could not under the Burmese sway. They detest the Burmese Government, and would be happy if the whole of the Burmese dominions enjoyed the same privileges as those of the government of Pegu. The very feeling that they are being administered to by civilized European gentlemen of learning and experience, with the Governor General now and then calling at Rangoon to see the fruits of their labors, encourages them in their inclinations, and they are quite satisfied of the authority which exercises sway over them. Previous to our coming among them, almost all the offices were filled by Burmese, suspicion and espionage penetrated every where, and the harpies of tax gatherers or grinders I should say, were spread over the face of the country, employed in bringing "grist to the mill." Compare this former city of stagnation with its present active industry under the British.

Having performed our tour of inspection through the Southern forests, that is those situated on the feeders of the Lhine, Phoungyee, and the Zamayee streams which fall into the Irrawaddy or Rangoon river, we left Pegu on the evening of the 25th instant, and stepped into a boat which glided along the calm dull bosom of the Zamayee, a fine river, which takes its name from two different localities situated on its banks, viz., Pegu and Zamayee or Zountoo —with hardly any noise except the occasional dip of the oar in the water, and the slight creaking of the gunnel as the manjees plied their strokes. As every one knows, a river which is situated six miles distance further down its stream, assumes so much importance as to be the object of plunder and even dacoity, and presents no very imposing aspect in the neighborhood of Pegu ; but so gloomy was the moonless sky, and so dense was the heavy fog that hung over the waters, that from the moment we heard the eight o'clock gun, both banks became quite invisible. The deep, misty obscurity of the atmosphere, and the profound darkness of the night, might have been a cause of terror to me under any other circumstances ; but now all apprehen-

sions of danger from the want of light, and the difficulties of the navigation—on account of the shallowness of the river—were swallowed up in the fear of being overtaken by the dacoits, and the impenetrable veil which seemed to cover all things around us we looked upon as a blessing, in the hope that it would also conceal us. The darkness, however, which gave the feeling of security did not continue so uninterrupted as to leave us entirely without alarm. We then heard a slight splash from behind a little projection of the shore, on which an old tree of *Butea* had planted itself, spreading its roots down to the very river. Then came a rushing sound as of something impelled quickly through the water, succeeded by the regular sound of oars, and, in a moment after, a boat, rowed by five strong men, darted out into the stream, and followed us. We informed them that, if in a reckless manner they attempted to near us, their lives should pay the forfeit. This had the desired effect. They rowed off strongly and well; the slow current with which they were proceeding was not powerful enough to afford much assistance to their exertions, but still the boat skimmed swiftly till we reached a small village belonging to the Syriam district, about one in the morning (where we stopped till day break), when the air became gradually less dense, and about half an hour afterwards the fog had cleared away entirely. It was still dark, but the stars afforded sufficient light to discern that we were close to a locality where the paddy fields, in some places, were gradually merging into grass jungle, a scattered area of copse and underwood, mingled with patches of ground which had been reclaimed to the use of man, came down to the banks of the river, and straight before us to our right lay a dark and shadowy track, broken into dense, heavy masses, the rounded forms of which, cutting black upon the lighter sky beyond, distinguished it as wood, from the soft sweeping lines of the clouds upwards, which in other directions marked the horizon. I consider there is scarcely any thing on earth more gloomy and impressive than the aspect of a deep wood by night, with just sufficient light in the sky to contract strongly with the stern body of impenetrable shade presented by the forest, and yet not enough to show any of the smaller parts into which it appears separated by day.

This morning, however, compensated us liberally for last night's disturbance. The sun had not risen above an hour when the whole prospect was in all its freshness. The mists and dews of night, flying from before the first rays of day, had gathered together in thin white clouds, and were skimming rapidly towards the horizon, leaving

the sky every moment more blue and clear. . As my eye wandered, a fair, undulating country met my view, interspersed with deep brown woods. Over all, the ascending sun was pouring a flow of light, while the clouds, as they flitted across the sky, occasionally cut off his beams from different parts of the view, but gave a more sparkling splendour, by contrast, to the rest.

This pleasing countenance of the heavens continued till we landed at Rangoon, which we reached about two o'clock in the evening, and

“ From the barge

A strange invisible perfume hits the sense

Of the adjacent wharfs.”

MEMORANDUM OF A TOUR &c. IN 1855.

The present paper, although of no great value, may at least pave the way for further inquiries by persons starting doubts on any points that may seem obscure, or worthy of greater elucidation. The present are merely rough notes, or a memorandum of a tour undertaken in the suite of Dr. McClelland, and written *currente calamo* among the scenes they describe; in fact they are more a record of individual adventure to fix the transient impressions of the moment for my after gratification. There is a strong desire to obtain information regarding the Tounghoo, Naving and Tharawadie Teak forests, and the possibility of these hurried notes being of even a little use, and be found not altogether devoid of interest to the anxious inquirer, induces me to submit them to the public.

The city of Tounghoo, or that tract of country lying on the east bank of the Sittang or Panloun river, is situated in lat. 18° 56' 22" N., long. 96° 56" E., one hundred and forty seven miles east of Prome, from which it is separated by the Yomah range of hills, ranked upwards of eight centuries as an independent and flourishing Kingdom. It was, according to Symes, subdued by the Peguans. From Revd. Dr. Mason's Ethnology of the Province, we learn that "the King of Pegu to whom Cæsar Frederick refers, appears to have been a Prince of Tounghoo, of Burmese descent, who conquered Pegu, and is called in Burman history, Tshen-byn-mya-shen, Lord of many white Elephants."

We indeed discover much important information regarding foreign wars, the erection of Kyoungs or monasteries and Pagodas, the establishment of the Boodhist religion, the internal dissensions that have taken place, and the administration of its rulers who appear to have afforded most abundant materials for the work of the historian, but we find a melancholy blank in the details regarding the Teak forests of Tounghoo. Like all nations whose selfishness and jealousy deprive the rest of mankind of a knowledge of their resources, natural productions, manufactures, &c. &c. &c.

The earliest notice of them is that afforded by Mr. Seppings in the shape of a memorandum, submitted by him to the Marine Board, in consequence of the unfavorable opinion entertained by the Lords of the Admiralty of the qualities of the Tenasserim Teak. He writes,

"Pegu and Maulmain Teak is extensively used" by the Ship builders of the Hoogly, and is the only description of Teak imported in any quantity into the Calcutta market; it is brought in a half-wrought state, the logs or planks being squared."

The Pegu teak alluded to above is the produce of the Tharawadie and Tounghoo forests. The latter grows of the best quality on account of their peculiar situation, the country being high and not liable to submersion in the wet weather. Mr. Seppings gives it also as his opinion that these forests are inexhaustible, and are able to supply the largest requisition if worked with proper care.

In order to obtain an accurate idea of their extent it will be necessary to advert to the papers relating to them when the country passed into our hands.

Mr. John Tracey was nominated on the 1st August 1853 as an assistant in the Forest Department, and deputed to take charge of the Timber Revenue office and Teak Forests in Tounghoo district. His attention was directed by the Superintendent

Summary of
Tounghoo papers.

1st.—To make himself acquainted with their natural divisions, and to ascertain the number and value of the teak trees in each tract, the establishment that may be necessary for girdling the trees, and keeping a register of a certain portion of those trees fit for cutting yearly according to the demand for teak in the Rangoon market.

2nd.—The practicability of disposing of the killed trees to Merchants by public competition.

3rd.—To find out the number of felled logs cut prior to annexation, lying in different parts of Tounghoo, and to proclaim that, on the owners failing to remove them within a given period, they will be treated as unclaimed timber.

4th.—To ascertain the number of killed trees standing in the several forests as well as the number of the unclaimed logs, and the amount it would be proper to demand for each class with reference to average size and facilities offered for dragging to the nearest stream.

5th.—The best means of protecting the interests of Government in the unclaimed timber lying in the Forests.

6th.—The establishment required to preserve the Forests, to mark the trees fit for felling, and to prevent any trees from being felled but such as have been previously marked by the Forest authorities.

To these well defined points were Mr. Tracey's attention directed,

but I fail to trace in his letters to Dr. McClelland all the information he was called upon to supply ; they, however, show that some of the Tounghoo forests were completely worked out ; the following summary of his replies will however best inform.

The forest tracts visited by him were those which constitute the Zayawaddie district, lying on the Banlong, Thitphat, Pyailikegyee, the lower part of Koon, and between Phyw and Banlong choungs.

Banlong forests he says are situated five or six miles from the Sittang river. The creek which ramify these
Banlong Forests. tracts are too narrow to afford facilities to float Timber. Mr. Tracey considers they cannot be worked during the dry season but on the setting in of the rains, the ground then being flat and subject to submersion—timber can be dragged across the marsh. On account of the dense jungle, Mr. Tracey was prevented from extending his examination, but from what he observed, and other concomitant information derived from some of the natives, he concluded that there are now remaining in the Banlong Forests, 200 killed teak trees and 400 nathuts, or timber which has dead by natural causes, varying in dimensions from three to three and half cubits in girth.

Thitphat forest is intersected by a choung called by the same name, taking its rise from one of the ridges of
 THITPHAT the Tharawadie hills, and emptying itself into the Koon. The wood is said to be conveyed overland into Koon choung—the nearest water carriage. This process, as Mr. Tracey says, requires not much labor as the ground is permeated by an overflow of water during the monsoon, and it thus facilitates the removal of timber. Its supposed contents are 80 killed trees, measuring in girth above three and a half feet in girth.

The circumstance and position of this forest are similar to those
 above described. The timber from it is dragged
 PYAILIKEGYEE. into the Sittang. The number of seasoned trees supposed by Mr. Tracey to be contained in this forest is 25 to 30 killed trees varying in dimensions from three and a half to five cubits.

The Forests situated between Banlong and Phyw choungs contain a few teak trees, interspersed with other jungle trees, and those on the lower part of Koon choung contain sixty killed trees and the same number of Nathuts (dead timber), measuring in girth above three and a half cubits.

Then the Forests of Zayawaddie district have been computed by

Mr. Tracey to contain in all 830 sticks, measuring from two cubits and upwards, and ready for removal.

No definite information has been given by Mr. Tracey of the approximate number of green trees in these Forests, but he is of opinion that the unrestrained working of them was fast leading to their extermination, and that the Teak trees were not of old date, and by no means of the most common or prevailing form; he however concludes his letter by observing, that the Forests on the Yainoay and Swa choungs are very valuable, and said to contain many magnificent trees, many thousands of killed and felled trees, and without them the Tounghoo forests may be said to be valueless.

In regard to the best method calculated to assist in renovating the aforesaid exhausted forests, Mr. Tracey suggests that it would probably be advisable to stop killing for some time.

On a subsequent date (March 1854,) Mr. Tracey in reply to the instructions of Dr. McClelland to inspect personally and to report definitely on the extent, condition, and resources of the Teak Forests under his charge, stated his inability to do so from indisposition, which compelled him to return from his abortive journey. He found parties unauthorisedly cutting small timber, and succeeded in confiscating eighty four posts and twenty six boards.

Mr. Tracey towards the end of August 1854 resigned his office, and was succeeded by Mr. Gibson, who examined the northern forests, and he reported that, throughout the whole journey, he made it his special duty to visit those parts of the forests where teak was said to be most numerous, but as the greater part of them were amongst the dense jungle, he was unable, on that account, to form an idea as to the number of standing green trees, and deferred reporting until the forests had been fired, when he then hoped to be able to traverse them to better purpose, as the low jungle and long grass, prevented him from seeing any distance from the path he travelled. He returned to Tounghoo, but was shortly afterwards attacked with jungle fever, of which he died in January last.

Mr. O'Riley also reports* that the country drained by the

* Extract of a letter No. 27 dated 18th Oct. 1853, to the address of Mr. Comr. Phayre, from the Asst. Comr. of Tounghoo copy of which was sent to the Superintendent.

Phyew, Koon, and Inetong streams, he observed several localities interspersed with teak. Numerous young healthy plants of successive season's growth were found, and on account of the fine, straight, and well formed seedlings, he deems the soil admirably adapted to its nature.

Such being the complexion of the information regarding the Forests on the Sittang river, it became necessary that the Superintendent should personally examine them, and he accordingly left Rangoon on the 16th of January last. The route pursued was to Phoungyee about thirty-five miles; thence to Zountoo village on the Pegu or Zamayee chong, through the Mahooya pass, about thirty miles, and thence thro' the hill Codogway to Bawnee district, where the hills were observed to have suddenly terminated, broken into low ground but a little above the general level of the country, and about sixteen miles of almost level ground carried us into Tounghoo district. The first sixty-five miles was familiar ground to us, we having explored it the year previous.

The soil of the Phoungyee valley, generally, may be considered extremely rich, but the bounty of nature, I am sorry to say, is marred by the indolence and apathy of the men of this place. The cultivator seldom looks beyond his immediate wants, and makes no attempt to improve his condition. In fact, in agricultural industry, this place may be considered half a century behind Tounghoo, as will be hereafter demonstrated, and there seems little prospect of improvement, excepting by the introduction or appointment of a more active and industrious Goung, who might stimulate the natives to increased exertions.

We had to pay here four Rupees for a basket of rice, which speaks volumes against the treatment of strangers in this district. The present Goung, Ko Wike, appears to pay no attention to the improvement of the present position of his men; his time is said to be partly employed in superintending the removal of timber from the Phoungyee Forests on account of Messrs. Fowle Godfree & Co., and in settling his accounts with that firm. He was absent from his post at the time we arrived, and loitered away his time at Rangoon for two months.

I respectfully beg to suggest that the vagrant law of England be here enforced, and if that is not possible, some local rule be enacted to restrain idle characters throughout the territory. Why I ask the former because the Burmese Government is said to be the only proprietor of the land, although the tenant was usually left in possession upon his paying a revenue, and had full power to alienate as he

That the sovereign is the proprietor of the soil is not to be denied, as it is distinctly expressed in the *Damathat*, in various places, particularly where it is stated that his power extends to visiting the

cultivator with punishment for injuring the land, or failing to sow it in due season. This point is undisputed, for (as it is natural to suppose), were not the supreme head vested with this prerogative, public embarrassment must inevitably ensue, since the resources of the state depend principally upon its land revenue; that the right resided in the cultivator as long as he paid the revenue, is equally certain, otherwise it would be fatal to the existence of agricultural prosperity and population. The proportion thus to be rendered the Burmese lawgiver appears not to have fixed with any precision. When carrying on foreign or external wars, in time of tribulation, or necessity, he could take a fourth of the produce; but as it was quite discretionary with his ministers to determine with respect to the urgency of the occasion, the amount of the demand must have been uncertain.

Whilst in camp in Phoungyee village, on the 10th January last, the inhabitants were seen to come out from all directions, carrying on their heads wooden trays stored with cups and saucers filled with cooked provisions for Moung-Thetphau and his ten followers. An old woman on this came to me and remarked, that she was astonished at our proceedings in scrupulously paying for every thing we required, and even hinted that she and the rest would be very glad if the Myo-oaks were ordered to abandon this old practice which they could ill afford to sustain, after having suffered terrible visitations and panics during the war. These functionaries I am given to understand, exact these privilege because they were tolerated by the late government.

The observance of the ancient customs of a country I admit is always proper, but the argument on which it is based, however clothed in the garb of respect for ancient usage, comes in a plausible form; and we must not allow ourselves to be entirely carried away by their pleasing appearance. We should first consider whether these customs are in themselves good or otherwise. What are their natural effects and results? For, if these Myo-oaks under the British Government are to follow customs, usages, and practices radically bad, because they were tolerated by the preceeding Government, I venture to state, it will only perpetuate an evil, and obstruct improvement.

We entered the Bawnee district on the 29th January 1855.

The fore-ground of the Bawnee forests is almost level. Teak trees

were observed to exceed the number of their associates owing to the soil being of a light grey, sandy and dry, which is apparently congenial

BAWNEE FORESTS.

to their growth. The number of seedlings are exceedingly numerous, growing scattered in every direction, and after a careful examination of the locality, I found that their presence could only be attributed to this cause, and that they were not deprived of the rays of the sun. We passed by twelve large trees, and vigorous young plants to the number of thirty were seen scattered within a radius of one hundred yards; this may be taken as a general average of seedlings to parent trees in these forests. These Forests may be considered unworked. In three localities, Kyouktalone, Wineghet, and Binedah, we found trees that had been abandoned, having been killed about ten years ago. They are drained by Kawleyah, Binedah and Yainoay. Timber cannot be transported by the two last mentioned, as they are blocked up with rubbish.

The deposits of the unavailable choungs, consist partly of gravel, carried into the streams during the rains, and partly of fine mould, slowly accumulated in the swamps, and the prodigious quantity of drift wood lying prostrate, and the innumerable trunks of trees, layer on layer, with a large portion of alluvial deposits, or the increment matter, account for the existence of permanent obstacles to the removal of timber.

The Forests contain 888 large standing green trees of five feet and upwards, and 15130 yats or undersized timber. The returns of the seasoned timber, drawn up with every care, show that there are 654 full sized logs, and 361 undersized trees.

The Nga Mhyahzak, or poison tree, called by the natives (probably the far famed *Upas* or *Toxicaria Macassariensis*) about which so many marvellous tales have been told, is found in the woods of the Codogway pass. This is a different tree from the one in the Kimendine jungle, which is said to be poisonous. The poison is deleterious, as our guides assured us, but not so potent as has been represented in Bengal and in the Straits. The tree itself does no earthly harm to those around it; in fact, we sat under its shade, searched for seeds and dried leaves, and saw birds light on it without any prejudicial effects from its influence.

On the 2nd February 1855 we halted at Binedah village, where we were surprized with the information that the village was deserted, in consequence of Goung-Ko-Myat Nghyeen being discovered as an accomplice in a dacoity which occurred in it some time ago. The peon attached to the Myo-oak's district court, could have in a considerate manner, executed his unpleasant duty, instead of which he helped himself to all the fowls he could lay hands on. I wish I could say that this

was all. We learnt that he intimidated the wife and relations of the unfortunate Goung and other people, saying that they would all be incarcerated, and be made to work on the roads at Rangoon in fetters. He no doubt acted according to the Burmese custom, viz, that when you cut down a rattan plant, leave not a thorn; when you cut down a reed, leave not a leaf.

The people of the Forest districts, I beg leave respectfully to remark, should be treated with all manner of kindness; nay, they should be fostered. The benefits that would arise, would, indeed, tend to reconcile them to the change of rulers, and to the popularity of our government. The advantages to both parties would be very great if we go further by cultivating a familiar and personal intercourse; we would acquire a better knowledge of their character and habits, and a degree of popularity with them, the attainment of which is an object of the utmost consequence to our Government. They, on the other hand, would gain by an acquaintance with our personal and national character and system of administration, and, by observing more intimately the effects of an advancement in general knowledge and civilization, would conceive a taste (as they are at present doing) for improvement, which might lead to the most important results.

Dr. McClelland deemed it, therefore, proper to inculcate these principles to his assistants in the Forest department, and prohibited them, when out in their respective circles, from acting on pompous notions of authority. They were, under these circumstances, obliged to travel in a plain manner. The Superintendent did the same, and it was attended with good effects.

I take this opportunity of stating that, whenever I am out in the district on duty, I always devote the best part of my time to questioning and listening to what the foresters have to say, thereby acquiring all the information I can. The headmen of the districts I always treated with courtesy and respect, and encouraged their visits.

On the 3rd February we entered the Toungh-hoo district or that part lying west of the city.

Toung-hoo is an extensive country in Pegu, situated on its northern extremity, on the borders of the Maihaw, from which it is separated partly by a choung of that name. It is a fertile looking district, and I should think one of the best cultivated in the province of Pegu, agriculture being carried on with exemplary activity and perseverance. In Kayen-ngouk-toe, I was very much struck on seeing a great number of barns (called by the Burmese *Sabajee*) owing to

the zeal, diligence, and perseverance of the village Goung. As a token of the satisfaction it gave me to see the manner he was performing his duties, I presented him with 15 Rs.

The population of Toung-hoo has been computed at about 25,000 souls. We who have traversed Toung-hoo in various directions, observed vast tracts of land of the most beautiful description lying fallow, covered with low jungle, and awaiting the hand of man to yield a most luxuriant crop. The fact is, that even in the very best villages, there is scarcely any increase of population, owing to the mortality occasioned by the small pox and other epidemics, especially fever.

The district now under notice, lies between two ranges of hills on the east and west, which run nearly parallel to the distance of sixty miles. The country—except the plain on the South—is not subject to inundation in the rains. It was anciently divided into four departments or principalities, viz. Zayawaddie, Dingyawadie, Dhwahyawaddie, and Kyat-Khat-wey-ah. The first three comprises the Northern division, and the latter the Southern division.

The Eastern range, a continuous elevated tract of great extent, and much higher than the Yomah, extends in
EASTERN RANGE. a direction nearly parallel to the Sittang; it is denominated by the Burmese *Panloun-g-toung*, or mountain, its limit I have not been able to ascertain. Nature has abundantly supplied it with hills and dales, valleys and choungs, and Teak forests to a pretty good extent.

As in the east, so likewise on the west of the Sittang, an elevated land not uncommonly called the Yomah range,
WESTERN RANGE. runs in a course nearly parallel to the river, and at a distance not exceeding twenty miles, taking it in a direct line. This range divides the Tharawadie and Prome districts from Toung-hoo, and forms the principal obstacle to land communication with them. That portion of the Eastern face, which lies south of the city of Toung-hoo, between Khaboung and Swa, where it crosses at a reduced elevation, the range does not appear to be distinctly developed; thus an amphitheatre of level surface, bounded by hills, is there formed,

Whether the above be a correct explanation of their direction and position, which forms so important a feature in the Toung-hoo district, I cannot undertake with certainty to assert, but I think I am correct in the main features.

The conduct of the Goungs of Swa and Thanatpinzake village, in

the Toung-hoo district, is certainly deserving of notice, for not taking measures to suppress the unlicensed stills which are worked in abundance in their jurisdiction. Owing to the facilities thus afforded, I had great difficulty in preventing the Burmese Sepoys of our party from getting intoxicated. From the fact that these stills are erected near their own houses, I suspect that they have a decided interest in this illicit traffic. A vigorous effort is needed to arrest the progress of intemperance among the natives. As one means of contributing to this important object, I beg to propose that the Rangoon Abkarre Rules in regard to illicit distillation be promulgated to these people, and enforced strictly and to the very letter.

In a preceding paragraph, I have alluded to the eastern and western ranges of Toung-hoo. I shall now describe the Northern and Southern divisions.

The sides of the hills and uplands are covered with forests, rendered almost impenetrable by the numerous
NORTHERN DIVISION. bamboos and ratans. Whilst by their verdure, they give beauty to the scenery, they prevent the access of visitors on elephants until a path is cut by severe blows. This division is drained by the Swa, Myolha, DOUNGLANGYA, Chinboun, Byinbyai, Gwaithai, Koon-Oung, Kareen and Kanee.

The Teak of these forests appears to be of the best quality, being of immense girth, tall and straight. The tracts in the lower part of the choung and its tributaries are totally exhausted of it. The higher Forests are particularly noted as containing several
SWA FORESTS. thousands of the finest possible young trees and seedlings, intermixed with a sufficient number of full grown trees. These young trees and seedlings, I believe to have grown spontaneously.

These forests present characters very closely resembling each other; from what information I could procure, I estimate they contain about 3,000 above five
MYOLHA, DOUNGLANGYA, CHINBOUN, BYINBYAI, and GWALTHAI. feet in girth, and nearly 9,000 undersized trees inclusive of seedlings.

These forests lie on the Eastern skirts of the Sittang valley, and are the broadest, and the trees in them the largest of that part of the country stretching to the south side of the Koon-Oung valley and to the mountains on the east.
KOON-OUNG FORESTS.

The Kareen forests lie about three miles east of the village of the same name, and extend from thence along the course of the valley of Kareen choung and its tributaries for ten or fifteen miles.

Kareen Forests, Teak appears to show about four miles from the Sittang river and extends to the Panlounng mountains.

The trees very generally disseminated in the Northern forests in which teak grows are *Dipterocarpus alatus*, *Melanorrhæa usitata*, *Shorea robusta*, *Inga xylocarpa*, *Pentaptera arjuana*, *P. glabra*, *Strichnos nuavomica*, *Diospyros melanoxylon*, *Odina wodier*, *Sibia Sp. (Gloemerata)*, *Amoora (aglaia) rohitoca*, *Walsura piscidia*, *Buchanania latifolia*, *Bauhinia parviflora*, *B. brachycarpa*, *Cureya arborea*, *Senecarpus, anacardium, &c.*

The following are the streams which ramify the Southern division. Koon, Phyw, Banlong, Youkthawah, SOUTHERN Thoukyaighaut and Khaboung. The courses of DIVISION. the Koon and Phyw—near the hills which divide their conterminous forests from Tharawadie—are interrupted by boulders of rocks which extend about four miles along their beds, and as these obstacles prevented the wood cutters from extending their work beyond them, the Teak trees in the higher forests are very numerous, having remained almost untouched up to this day, and at freedom to attain their present degree of perfection.

I do not pretend to have ascertained the distribution of their rapids with the precision necessary to permit the expression of an opinion as to the causes which placed them, but I may state that they appear to me to have been formed by aqueous agency, the neighbouring mountains supplying fragments of rocks, sand, and mud, and the fragments thus fixed caused the boulders, the difference of their composition from that of any rocks in their vicinity, bear every appearance of having been transported from a distance. The country to a very considerable distance below them is very level, and is in, general, covered with a deep levigated deposit of argillaceous and arenaceous matter, but the plains between Koon, Phyw and Toung-hoo, occupy a breadth of forty miles, and the nature of the material of which they are composed renders it impossible to conceive a region more fitted for the purposes of agriculture.

These forests contain well grown teak with young seedlings rising

in adequate quantity to renew them, but
KOON FORESTS. in patches at great intervals. Between the
 main stream and its tributary, Thitphat, the
 ground on the south side of the former does not appear to attain the
 elevation it exhibits on the north west, occasionally so low, close
 to the margin of the stream on both sides, as to allow the formation
 of marshes, and thus facilitate the removal of the timber direct to the
 Sittang. The Koon chong is a clear deep stream about one hundred
 feet broad, but the smoothness of its course, as I have before remark-
 ed, is disturbed by rapids. Teak is here associated with *Dalbergia*
latifolia, *Inga xylocarpa*, *Hibiscus macrophylla*, *Melanorrhæa usitata*,
Bombax pentandra, *Dipterocarpus turbinatus*, *Accacia scrissa*, *Melicoca*
trijuga, *Blackwellia spirale*, *B. perpinqua*, &c.

The Phyew forests commence three miles from Minlan village, and
 are almost exhausted. The only method this
PHYEW FORESTS. waste land could be repaired is to set young
 Teak trees—which show here in abundance
 —on sites near hills and streams well suited to their growth. It
 would merely be necessary to guard against fires by the removal
 of the long grass, which in the dry season, becomes very inflammable.
 Above the rapid there is a considerable quantity of teak. I should
 estimate the number at about nineteen thousand including undersized
 trees.

They are about four miles in extent, and from their ac-
BANLONG FOR- cessibility, they have been overworked, and teak
ESTS. has now been nearly cleared out.

The Forests extend along both banks of the stream of the same
 name. All the species of trees growing in them
YOUKTHAWAHI attain the largest size, the soil being rich, fine,
FORESTS. and sandy. The *Lagerstræmia regina*, *Mel-*
anorrhæa usitata, *Pentaptera glabra*, *Diptero-*
carpus alatus, *Excecaria agallocha* &c. are found here in abundance,
 but teak bears but a small proportion to the species above enumerated.

The lowest part of these forests commence about three miles above
 the confluence of the chong with the Sittang,
THOUKYAIGHAUT and a few miles higher up we observed a succes-
FORESTS. sion of low eminences upon which teak was seen
 growing in abundance. The finest *Shorea robusta*, *Pentaptera glabra*, *Inga xylocarpa*, *Melanorrhæa usitata*, *Diptero-*
carpus alatus, *Dalbergia*, *Walsura piscidia*, *Engenia* &c. abound here.

The teak yielding tracts commence a few miles above Tabek-Kway, a village situated thirteen miles south of Toung-hoo. Teak is seen on both sides of the choun^g after reaching Thabyaiwah. The timber of this place is straight and of the best description.

The forests above Kyetsha are very dense and shady. The other trees composing these forests are *Cedrella toona*, *Strichnos nux vomica*, *Inga xylocarpa*, two species of *Pentaptera*, *Terminalia belerica*, *T. violata*, three species of *Eugenia* &c.

Such is a description of the beautiful valley of the Sittang, favored by nature on a scale of grandeur commensurate with its vast territory, mighty vegetation, majestic choun^gs, gigantic forests, and a wide expanse of land that characterize the magnificent tracts of Toung-hoo.

The following figured statement exhibits the resources and capabilities of the Toung-hoo Forests. It will also show the quantity of seasoned timber ready for removal to be either expended for the construction of public buildings, or made available for the Rangoon market.

SEASONED TREES.

1st Class.....	Nathats.....	7 feet.....	1299	
2d do.	do.	6	1225	
3d do.	do.	4	1681	
1st do.	Killed	7	954	
2d do.	do.	6	1087	
3d do.	do.	4	1204	
1st do.....	Felled	7	989	
2d do.....	do.	6	1465	
3d do.....	do.	4	1483.....	Total 11387.

STANDING GREEN TREES.

6 feet and upwards.....	13095	
5 „ do.	35306	
4 „ do.	89427	
1 „ 6 inches do.	125466	...Total 263294

Total of all.274681

The total number of standing green teak trees in the province of Toung-hoo is estimated at 263,294 as shewn in the above statement, and I consider that number capable of yielding annually, without injury to the Forests, 5000 Logs.

The Teak forests of Toung-hoo, so far as we are acquainted with

them, are not inexhaustible, for since their creation, cutting processes have been extensively and uninterruptedly going forward with somewhat of cupidity on the part of the foresters, and will go on as certain as the earth continues to move round its orbit, if effective, and timely measures are not taken for their protection, by placing a strong barrier between them and the Myo-oaks and other district Goungs, otherwise it would be a herculean task to perpetuate them. The preceding conclusions involve no hypothesis, as they are clear and unequivocal proofs, and may be considered inferences fairly resulting from facts observed on the spot, and from the evidence of parties living in the neighborhood of the forests.

To explain my ideas fully, however, it seems advisable in the first instance that I should state what I conceive to have been the acknowledged authority and duties of these district functionaries, which I shall accordingly do.

The whole of the arable land, or the forest tract, was apportioned out to a single individual, and such land was distinguished by the surname of the occupant, as for instance, Yaibane village, Karenzoo, Taliengone, and so on. The local petty governors were called Goungs, or Thoogyees, Myo-oaks, &c.

Whether the office was centred in one person, or occupied by more
GOUNGS OR THOO-
GYEES. can only be supposed—the probability, however, is, that there was only one person, who took a fourth or fifth or sixth share of the lands or forest produce. The duties were to collect the revenue from the district people, and to be responsible for the claims of Government on all; thus collectively rendered under one head, a body corporate for the discharge of certain obligations and for the enjoyment of certain privileges were formed, and were therefore distinguished by the name of Goungs, or Thoogyees. From the meaning of this title it seems probable that he was the first or headman who occupied or colonised the new village, and from that circumstance, he and his descendants acquired the title of Goung or Thoogyee, and also the respect of those who subsequently settled in it. He was also looked upon as the representative of the people, and as the manager of the affairs of the society. His station was supported by positive advantages.

The supply of buffaloes for dragging timber, or the purpose of cultivation, is his monopoly. His great influence over the people gave him a command over the village councils, and he and his wife were entitled to precedence in all invitations to marriages, dinners,

and Kamoondats (christenings). No district marriage or divorce was considered valid or complete, without his presence.

It is probable that the Myo-oaks were formerly as much a natural head of the village or town society as a servant of Government. They were Magistrates by the will of the community as well as by the appointment of Government; they suggested improvements for the benefit of the association, and marshalled them to aid in maintaining the Phoongoes or the public peace. Their privilege of drawing on the purses of the people, appears not to have been, in any way, controlled. My own opinion is, that the people originally had conceded to them the management of the whole affair; they turned the money derived from marriage fees &c. to their own advantage, and by degrees introduced new items, or increased the amount of the established fees, until they burdened the poor inhabitants pretty heavily.

It has been shewn that the only object of the Myo-oaks was to enrich themselves—money was their *sine qua non*, and therefore they adopted every measure to realize it. They exercised all their ingenuity to deceive their immediate superiors, by misrepresentations on every subject. It is owing to their success that the Timber trade in Pegu retains its appearance; had they been foiled on all occasions, the trade would have been at the lowest ebb. But so long has this system prevailed, that all vestige of correct accounts is lost, and the actual condition of the Forest districts is unknown, even to the foresters themselves.

It has been advocated by some people, that as the Thoo-gyees or Goungs of each forest district, under the Burmese Government, derived considerable emoluments in the shape of presents &c, and these having now been withdrawn, the old rules should either remain in *statu quo*, or they be rewarded at a certain rate for every tree felled and taken away, as an equivalent.

To allow these headmen fees is perhaps in some degree objectionable, as it may lead to the exciting and stirring up of a mercantile spirit, a spirit of adventure, or of enterprise, which though advantageous to the trade of a country, yet unsuitable to their office, as they, in their positions, would be led to cut indiscriminately, with a view of obtaining an early and rich harvest of these emoluments. When Dr. McClelland made arrangements, in the Southern forests, to appoint Goung-gwais, considerations of the same kind as the above

were not overlooked, for they interfered in their final adjustment; and as they held such executive power under the Burmese Government, and our enquiry into their actual state, privileges, and emoluments intended and directed, only brought to our knowledge facts that they will not perform more than their duty for nothing, and if not paid for it, they will in some measure, obtain it from some other source. The power and influence which headmen of various ranks and degrees were found in possession of at the time the newly acquired province fell into our hands, will account for the free and voluntary exercise of those functions, without manifest, or, at least, avowed advantage, and at the same time show the result and effect produced by the admission of power on such principles.

I make the foregoing observations with great diffidence, and I merely throw them out as suggestions for consideration; they relate to matters of great complexity and difficulty, but which are of fundamental importance to the preservation of the Teak forests; and although the system is a generally recognised and established one, it is rather an institutional than an individual vice; but still the Myo-oaks are not irresponsible. Great robberies are committed under the protection of this law and custom, and nothing is more needed than the total abrogation of the old system of forest administration, as the days are gone by for either physical or financial violence.

These observations, which are intended to reduce the present complications into something like order; to re-establish a set of just principles for appropriation; to remove the monopoly from the hands of the Goungs and Myo-oaks, as a fruitful theme of contention and a prolific source for obtaining funds by jobbing and corruption, and deserves the most strict attention.—Captain Ardagh in writing on this subject, gives a mass of information, and a most unfavorable opinion, with much force and precision doubts the probity of the Goungs Myo-oaks and Thoogyees, and says that “especially in Myodoung, and in the back parts of Meaday, they are not to be relied on, and unless the forests are placed under the observation of trust-worthy people from the Timber Revenue Department, these men cannot be kept from pilfering and cutting down teak trees.”

On the 20th February, we completed the examination of the Teak Forests, except the Khaboung, which we reserved for our way across the hills to Prome. In almost all the Forests visited, especially in Koon Oung, we saw timber felled and sawn green and unseasoned; that violations of the Forest rules were practiced generally

with impunity, so that, almost all the streams were full of sunken timber cut down before the tree had been girdled. In order to put a stop to such depredations, the Superintendent suggested to the Commissioner either to suspend our Forest rules and the collection of Timber Revenue until sufficient timber is supplied for the construction of public buildings at Tounghoe, or to declare Teak as a contraband article in the district. The latter course was strongly recommended, as the Tounghoo forests abound with other jungle trees admirably adapted for house building purposes.

Nature had done every thing apparently for continuing the supply of Teak, as young trees, in different stages of growth, show themselves in all the Tounghoo forests, and in Swa and Koon—near the Kamaisai and Jobin villages, they bear a proportion of twelve to one of the old trees; in some parts of the former, the young teak is seen to skirt on the right bank of the Sittang to the foot of the Zahdahboe hills, one of the outer ranges of the Yomah, about nine miles in breadth and one in length, mixed with young trees of *Tectona Hamiltonia*, *Dipterocarpus alatus*, *Buchanania* &c., &c. These require to be preserved and planted in localities denuded of Teak, and to provide for this object, it would be necessary

1st To prevent any kind of depredations being committed in our forests,

2d An unremitting attention should be devoted to fostering their growth, and

3d. To remove the jungle which surrounds the plants and hinders their growth, as also to separate and transplant such plants as are in too thick clusters.

With reference to the first, the felling of teak timber below a certain size, should be strictly prohibited, as the self-sown plants from the seeds would, in most other situations, insure to a great extent the perpetuation of the Forests.

With regard to the second of these propositions it may be observed, that it has been generally admitted that Teak is a productive tree, and that the absence of seedlings in certain localities, may therefore be ascribable to fires, and, by removing the grass and underwood they will thrive, and thus fill up the void in our forests. Among bamboo forests it frequently happens, that extensive conflagrations take place in consequence of the friction of the closely entangled branches when blown about by the wind. It is said that the grandeur of these.

blazing wilderness is most striking when seen at night, and the sublimity is increased by the crackling sounds of the under-wood, and the crash of falling timber.

With regard to the third of the propositions, I may state that, in the Tenasserim Province, the forest authorities experienced great difficulties in carrying out their arrangements in the establishment of nurseries, &c. They considered that many men would have to be employed, and the Madras coolies, although comparatively industrious and obedient, were ill-suited for the Forest life; the Burmese and Kareens on the contrary were indolent and not to be depended on. Our forest Goungs residing in the forests, would prove valuable instruments in the work of the department, and as they are always on the spot, they can be employed in keeping down vegetation to a certain extent round the trees, particularly in the months of February and March, remunerating them at so much per acre, or an addition to their salary. We have used all our exertions in promoting the efficiency of these men, and we have gone far towards proving that the system of placing the forests under their charge will, under good management, be approved in practice, which is the best touchstone of all theories. The ill-success of the arrangements in Toung-hoo was owing to the Goung-gwais being left by the Forest Assistant there to work spontaneously, without any well regulated authority to stimulate them to action. In this respect we now possess the means of improving and invigorating the institutions by efficient check and control; but perseverance and a constancy of supervision are necessary to keep the engine in movement. To attain this end, and to watch and regulate their conduct, the undivided attention of one person seems requisite, and under these convictions, the Superintendent was pleased, as a remedial measure, to place me in direct communication with them.

One of the first and most striking things that arrested our attention and excited our wonder is, the multitude of circumstances which presented themselves and disclosed the operation of bamboos to teak trees. Indeed, the evidence afforded of the slow, languid, sickly, and gradual progress of their growth, enabled me, taking them into account, to appreciate the effects produced by such agencies. It was no later than December last, I made a few desultory notes regarding the bamboo, as follows :

1. The supplies of bamboos brought into the Rangoon market are principally derived from the teak forests, and even since the an-

nexation, a demand has been created which is progressively increasing to the capacity the province can supply.

2. When the province was in the hands of the Burmese, a duty of ten per cent *ad valorem* was levied on this article. It is however impossible to state the probable amount that accrued from such duty, but as the only available ground upon which to form an opinion is that of the present value, averaging from three to seven rupees per hundred, I may state, that several parties have offered to farm particular localities at a thousand rupees for one year, to the exclusion of all other cutters.

3. I would urge on the Government the policy of continuing the said practice with so important an article of the commerce of the province, not only to perpetuate our Teak forests, but for the interest of the public revenue. During our late tour, we invariably observed the intermixture of bamboos with young teak plants, forming a screen to their dank heads, and depriving them of the influence of the sun and atmosphere.

4. The officiating superintendent of Forests, in his valuable and interesting report upon the southern forests, has very properly remarked, "that a forest may be regarded a growing capital, the sources of which are the young trees, and unless these are preserved, and guarded with all the precautions essential to secure their natural growth and advancement to full maturity, it is obvious the forest must necessarily degenerate from the nature of an improving capital to that of a sinking fund, which, within a given time, must become expended." The above remarks apply to the points I am now urging; besides, experience has shown that the bamboos, after bearing cereal, hasten to decrepitude, and as the same negligence of the Burmese and Karens which reigns throughout the country with regard to the wanton destruction of the Forests by fire, extends equally to Teak Forests, these defunct remnants supply the devouring element with life, and the effect of conflagration on the young teak plants is no doubt most destructive.

5. It cannot be denied that even with good management the number of the Teak trees in our forests must, at least, annually decrease, and that the Timber localities of easy access must soon become rare. As connected with the future interests of the acquired province, the subject of the preservation of the Teak Forests, and the propagation of the teak to meet the continued demand which have been created, are of the most vital importance. It must therefore be the wish of Go-

vernment to adopt such a method as will effect so desirable an object.

6. The increase to the public revenue by farming out the bamboo forests would certainly be great. Say, for instance, that the Phoungyee forests were let for Rs. 500, the Pegu for Rs. 1,200 and the Lhine for Rs. 2,000 per annum. Here would be Rs. 3,700 for an article which yields nothing at present. The Pegu and Lhine forests produce the finest and largest bamboos, but in these forests as well as the Phoungyee, the male bamboo and the smaller sort used for roofing &c. grow every where, and in the greatest abundance.

On the 15th March 1855 we took the road to the Nawing forests by the Khaboung stream, and on the 26th we reached Singoung on the northern Nawing, having accomplished a journey of about seventy-five miles.

We could gain no information from the people of the Khaboung Forests. It would appear from their statement, that they originally inhabited the Nawing and Tharawadie forests, and had crossed over, on account of the disturbed state of the country, shortly after the war. They even now evince a disposition to leave for other quarters. Nothing can be more deplorable than the habits of this wonderful people. Whether there existed, *a priori*, a string of villages in this part of the Toung-hoo district, on the spot occupied by that whose ruins now remain, it is not necessary to discuss. The existing abandoned houses that were seen have led to the presumption of previous villages; upon this point facts are not wanting. Whilst traversing the district, I observed several villages containing from ten to fifteen houses without occupants. It seems they abandoned the place, because they did not like it, as well as on account of the scarcity of grain. This abandonment of course costs them nothing in feeling or money; they shoulder their daks and agricultural implements, and remove. If in the dry season, they set up their shed in a few hours, on the sandy beds of the choungs, and if in the rains they construct the same description of buildings and on the same spot, in a few days. They are essentially discontented wanderers, although they can content themselves with the smallest resources.

In this place, the following circumstance, which I recorded in my journal, was communicated to me by Nga Tsanlong. I venture to extract it, it may probably lead to investigation.

"Nga Tsanlong states. I formerly resided in the Promo district; I came over to Thabyaiwah village because I am afraid that Moung Thazan, Mythoogyee of Myodoung, may do some violence to my person. At this man's direction one Nga Noe, a notorious dacoit

of Tharawadie and now residing in Myodoung district, assassinated my brother MOUNG THANE, late MYOTHOOGYEE of Myodoung. For the service thus rendered he, Nga Noe, was remunerated by MOUNG THAZAN with 300 ticals of silver. This circumstance occurred after the British occupation. The deceased MYOTHOOGYEE gave no cause for his murder, MOUNG THAZAN being actuated by interested motives, that is, he aspired to his place, and to obtain his wishes, he incited to the murder."

Within the area of the Tenk tracts there are a great number of trees which are not universally dispersed, but are congregated in such a way as to form distinct regions or provinces. Thus the forests of the north and south of Prome are characterised by botanical peculiarities which depend on the presence of a few prolific species of jungle trees. The *Kanyin*, *Dipterocarpus turbinatus*, and *Aing*, *Dipterocarpus alatus*, although abundantly met with in Toung-hoo, are comparatively rare on those of the NAWING. The other jungle trees bear the same relation to more southern parts. The vegetation, however, in the NAWING Forests, is distinguished by the presence of a number of *Acacia catechu* (Shalbin) common to this district; it is every where present, alone, or in company with others.

These important differences, I should think, are owing to the remarkable dissimilarity in the geological structure of the land on both sides. The whole range of physical differences (the NAWING being higher than that of Toung-hoo, consequently, the former is not so retentive of moisture) and an attentive study of the configuration impresses me with the conviction that the earth radiates heat differently from a difference of geological structure; that atmospheric agents or causes change the condition of the trees, hence it was observed in the NAWING Forests, that the trees were denuded of leaves, and the soil of vegetation, which render them a difficult task to travel without any shelter from the sun, whereas in the Toung-hoo district it is quite different.

" The hills are speck'd with golden flow'rs,
And blooming trees the glad eye meet;
The birds within their leafy bowers,
Sing long and loud and sweet."

The general aspect of the NAWING or Prome forests is mountainous, interspersed with occasional tracts of cultivated land of various forms and sizes. Taking for a guide the course of their choungs, the country seems to divide itself naturally into five parts.

The villages of this portion of the district are for the most part

**NORTHERN NAWING
FORESTS.**

small, but various circumstances combine to render them more picturesque and pleasing than the southern district. Next to the main choung and its numerous branches, the leading features which distinguish them are the magnificent groups of large teak trees, which above Pouktoe village, abound almost every where, and more especially in the neighbourhood of Singoung village.

The second is ramified by Choungzouk; its conterminous forests are, indeed, visibly drifting to ruin, and that portion lying near Tantabin village now become denuded, was no doubt previously occupied by a considerable quantity of teak, and the

**CHOUNGZOUK
FORESTS.**

retirement of seedlings naturally took place, occasioned by the double and concurrent operation, viz., the axe, for that it was one cause may be legitimately inferred, as we had abundant proofs whilst traversing this tract; and their general expulsion by an igneous agent in all probability is the other.

The third comprises the tract watered by the middle Nawing and its subsidiaries. That portion bordering on

**MIDDLE NAWING
FORESTS.**

the mountains for a breadth of from ten to fifteen miles, is one vast forest of teak, intermixed with long grass and jungle trees; the former less luxuriant as the hills are approached, and the latter becoming more numerous and large.

The fourth is drained by the Southern Nawing. Teak forests are not very extensive, but good timber is

**SOUTHERN NAWING
FORESTS.**

procurable in the district of Tounglai. The forests are on the east and west side of the stream along the foot and on the sides of the hills.

The fifth is called Shoay Lai forests. The forests about Toungh-

SHOAY LAI FORESTS.

mouk village must be considered to be in an advanced state of exhaustion, but along the upper part of the stream a great number of teak trees of the largest size and most stately height, were seen in every direction. In these forests hundreds of logs, injured more or less by fire, (many in the original tree would have made capital mast pieces), were lying close to the stumps of recently felled trees, and on enquiring, we learnt, that the natives, after felling a tree, chopped it at intervals to make their utensils called byats, oaks, dOUNGLAUS, &c. &c. the remain-

der of which they then leave to be destroyed by the fires propagated by the grass and bamboo jungle in March and April, a more deplorable and wanton destruction of property than these forests exhibit cannot be found.

During the rainy season, the whole of the choungs above enumerated may be navigated by loaded bamboo rafts and boats, but they have not hitherto been much used for commercial purposes, as they are insignificant, and confined mostly to the mere interchange and barter of commodities for domestic consumption.

I must not forget to mention here that, although young seedlings of spontaneous growth are met with in the Toung-hoo forests, they are generally speaking rare in the Prome forests above described, and bear no proportion to the vast quantity of seeds annually produced. Their absence may be attributed to the destructive burning of the jungle, as that appears to me to be the only rational explanation of the matter.

The higher parts of the Naving assume the character of a series of high and sterile hills, and the lower parts compensate by the richness of their soil. The country to the south is spread out into extensive plains, which extend in almost uninterrupted continuity, and those who may have traversed Pounday, will agree with me in painting the country in the most sombre colors. Once out of sight of the line of trees that border the teak localities, one enters upon an interminable plain. These immense levels are a most remarkable feature in the aspect of this most extraordinary country. No hills rise in this immense flat, the eye wanders over a space resembling the ocean, partially interrupted by a few trees of *Borassus flabelliformis*, *Corypha Taliera*, *C. elata*, *C. umbraculifera* &c.

Grain throughout Prome is very cheap, a basket of clean rice sold at 8 Annas. It is partly to be ascribed to the redundancy of the harvest, which however seems not to have been more than ordinarily productive, and partly to a diminution of demand since the termination of the war, owing to the annihilation and withdrawal of the Burmese army with its train of horses, buffaloes, and other cattle; but when we compare the number of the Burmese army, however great in numbers, they bear but a small proportion to the great mass of the population. Their absence, therefore, does not in my opinion, adequately explain this low price of the staple article of food amongst so vast a population as Prome contains, but I am puzzled to discover any other satisfactory mode of accounting for it, save that there has

not been any demand for the export of it. From whatsoever cause it may be, the fact enabled thousands to live in comfort on their reduced means, and contributed in no small degree to maintain tranquility.

According to Burmese account, the provinces south of Prome once contained 175,000 houses. This no doubt has been exaggerated, for they do not certainly contain more than twenty thousand inhabitants, and in population, wealth, industry, and trade, are greatly below Rangoon.

The following gives the contents of the Teak forests of Prome :—

SEASONED TREES.

1st Class	.....Nathats.....	7 feet.....	617	
2d	do.....do.....	6 "	709	
3d	do.....do.....	4 "	873	
1st	do.....Killed.....	7 "	110	
2d	do.....do.....	6 "	153	
3d	do.....do.....	4 "	213	
1st	do.....Felled.....	7 "	702	
2d	do.....do.....	6 "	975	
3d	do.....do.....	4 "	1318	Total 5670

STANDING GREEN TREES.

6	feet and upwards.....	8479	
5	"do.....	13403	
4	"do.....	19368	
1	" 6 inches do.....	25300	Total 66550

Total of all 72220

We entered the Tharawadie district on the 5th April 1855. My report regarding this country is herewith appended marked A. It has long been fatally distinguished for the numerous devastations committed in it, but otherwise it is throughout a beautiful country; the superficial soil is rich in the extreme, affording the highest returns where cultivated. This description applies to the country extending as far as the base of the hills, the inland soil being chiefly red; but along the banks of the choungs, it is a mixture of sand and clay.

The most beautiful and useful feature in the landscape of this division throughout, is the great abundance of lofty and umbrageous mangoe groves, which occur generally in the compounds of the Kyoungs or residences of the Priests, affording a cool and pleasant shelter to the weary traveller.

The contents of the Bohnée, Toungh-hoo, Prome, and Tharawadie teak Forests above described, are given in details in the accompanying tabular statements B and C.

The inhabitants of our forest districts throughout the province as far as I have been, are Yaibanes, Kareens, and Chins.

The Yaibanes bring up cocoons. These pass through three states, namely the *larva*, *nympha*, and *imago*.

YAIBANES. It is only in this last that they are capable of reproduction. The *larva* before it

passes into the *nympha* state prepares for itself the silk which it draws from within, or with other materials which it combines together in a shell in which it encloses itself. The perfect insect issues from the *nympha*, through a cleft or division made on the back of the corselet. It may be remarked, that the Yaibanes have no proper system of rearing the cocoons. I have learnt, since my return from the Southern forests in 1854, that the time that elapses, while the worm is undergoing its changes, varies according to the quantity of nourishment with which it is supplied. The Chinese are most particular on this head, as on this depends, so I am given to understand, the quantity of silk which the worm will produce. The Chinese calculate that the same number of insects, which would, if they attained their full size in twenty five days, produce twenty five ounces of silk, would only yield twenty ounces if their growth occupied thirty days, and only ten if forty days. During the first day of their sustenance the Chinese feed them every half hour, the second day thirty times, and so on, reducing the meals as the worms grow. I took particular care in this tour through the Forests to communicate the Chinese plan to the Yaibanes, and earnestly desired them to adopt it, and I have since heard from the Headman of Joebin village in Toungh-hoo district, that in consequence of having followed my advice, his worms produced more silk, and of superior quality, than the other Yaibanes of his village. I have therefore requested the Goung-gwais of the Forest Department to communicate the circumstance to all the Yaibanes living in their respective circles, and I do not hesitate to say that in time it will become a principal article of export.

I may as well here enter into a short account of the rise and progress of the introduction of silk into Burmah, and subsequently, among the Yaibanes.

In the year 1225 the Emperor of China, hearing that the King Tarabya was growing rich and powerful, and fearing that he might invade his territory, actuated by ambitious motives, entered Pegu

with a view of annihilating his power, and wresting the Kingdom from him, conjointly, with Burmese troops from Ava, but succor being afforded by Wayceraw, King of Martaban, on the appeal of the former, their combined forces repulsed the Chinese and Avan troops. During the short occupancy of the celestials, I trace that the manufacture of silk was, at that period, introduced. I am the more convinced of this fact from learning that the King of Pegu had, after that time, freely admitted the Chinese prisoners to his Court, probably to tutelage his subjects in the art of rearing cocoons, and the manufacture of all the varieties of silk stuffs then known, and thus be independent of China.

Some of the old inhabitants of Rangoon maintain that silk was introduced by the Portuguese in 1537, and this is probably the fact from the intercourse which that nation had with this country, and the various improvements in the arts and commerce they introduced for their own exclusive aggrandizement, no other European nation being then acquainted with the riches of the country. Others, however, think it hardly credible, taking into consideration that their Phœnician spirit was to get as much gold as they could for transportation to their country. But the introduction of silk worms, and the secret of rearing them for the obtainment of silk, might have been one of those incentives for the gold they sought.

The Yaibanés are one of the most humble sections of the Peguan race, but their long subjection to the Burmese have so completely obliterated all peculiarities, that it is hardly possible to distinguish them from the Burmese, whose costume, manners, laws, and religion they have adopted. In fact, the non-existence of genuine Yaibanés at present, show that the natives inappropriately bestow this denomination to rearers of cocoons and manufacturers of silk. Thus, a Burman, Kareen, or Chin, who embraces this profession, is called a Burman-Yaibane, Karcen-Yaibane, and Chin-Yaibane. All the information I received, tend to the demonstrated truth, that this unfortunate race has become extinct, and their tongue a dead letter. Their history is involved in such obscurity, that we cannot but feel pleasure at any attempt to penetrate the thick gloom which surrounds it. It is problematical whence they came, or by what steps they descended to this level. I should think they belong to the same family of wanderers who are known in Egypt as Gayaras. The now so called Yaibanés depend on the neighbouring Kareens for rice, for instance, if the Kareens emigrate to another quarter, they do the same, keeping about a mile or two from them. They have gardens where they sow

Morus Indicus in company with *Gossypium herbaceum* and *Bixa orellana*, this last is to dye the cotton and silk thread. Indigo is also rudely manufactured by them in large jars, and precipitated or rather mixed with such enormous quantities of lime, as to render it useless in its present form to European commerce.

Many remarks are unnecessary regarding the Kareens, save that they are a fine athletic race, sober and industrious, but not devoid of courage. They have a different language, but the Burmese is generally understood. Almost both sexes are now taught to read and write gratuitously by Baptist Catechists. They fertilize the flanks of hills for a year, and afterwards make a shift to another spot, either on the banks of the choung or small pools of water called ines. Thus, waste lands are eagerly sought for every twelve months; our forest districts are remarkable for deserted villages called ywalthoes and phonezoes or abandoned toungyas.

The agriculture of the Kareens is simple enough. They begin clearing the ground in the months of February and March before the first fall of rain, by cutting down trees and brushwood: these are then gathered together in heaps, and burnt. After the first rains have fallen, the male and female Kareens go to work, each male having a pointed bamboo, or a sort of hoe, with a long handle called *Taiywin*, and each female with a basket filled with the grain intended to be sown; the male goes on in a straight line, striking his hoe on each side and raising a little earth at each blow in the line, about two or three feet broad enough for a man to walk, the female follows with her basket dropping the seeds into the holes made by the hoe, which they then cover over with earth, and give it a slight pressure with the foot.

The Chins are peaceable people, probably, because they have long been a prey to oppression. Their women are reckoned handsome, but whilst young have their faces tattooed, thus disfiguring to render them less the object of desire to the Burmese who were in the habit of Kidnapping them. They hold the flesh of dogs in estimation. The only fault I can find with them is, that they are excessively fond of liquor. They still continue the abominable practice of making Khoungs, (intoxicating liquors), in which they indulge to excess.

The Burmese Government was exceedingly strict in its regulation regarding the sale of intoxicating liquors, and much of what is

to be found good in the morals of the lower orders of the people may be ascribed merely to the restrictions that were kept up. It, however, was considered a hardship to suppress the stills and prohibit the use of spirits to the Kareens and Chins as it is indispensable to them : it forms one of the offerings to some of their Nats.

The soil of our forest districts may be said to be divided into three principal kinds, each having subordinate shades and qualities, some of which are pretty well defined by particular designations. The three primary divisions are, 1st, black land or myai-nat ; 2nd, white land, or, myai-byew, and 3rd, red land, or myai-nee.

1st. The black land is highly productive, but of a very thirsty nature, and requires a plentiful and constant supply of water to keep and bring it into action. It is, however, more easily subdued than the others, but requires to be ploughed oftener, or trodden by buffaloes. Soil of this nature is, generally speaking, never permitted to be at rest.

2nd. This soil produces fine crops, but the best is when black mould is mixed with it, or forms its basis. Its characteristic is, that it does not harbour or cherish reeds or strong grass, and is therefore esteemed by the cultivators.

3rd. This is the red soil, and of this I am told, there are many varieties, for it seems to include all those lands which skirt mountains, and others the least productive in the country. It is in general a rough stiff soil to be worked upon, and exacts great labor, and the natives therefore have recourse to burning trees and other rubbish. This practice has a double object, that of clearing the country, preparatory to bringing it under cultivation, and also of manuring, as the ashes of the burnt trees tend materially to affect the soil. This red soil comprises a mixture of sand and clay, the sand predominating. Besides these three principal kinds, there are patches of stiff clayey soil in which scarcely any thing can be cultivated. It is generally found near to and on the banks of choungs ; it appeared to me to be black, brown, and white in different situations. The Burmese term it Kambah-yia-shan or undrained land.

Our forests are infested with elephants, and Pegu Province may be considered their most genial land, and that in which they attain their highest perfection. They might be rendered a source of great advantage to the army. In our march from Kway-ake-poy village to the city of Toung-hoo, we had to pass through a belt of jungle. The sublimity of the scene was much heightened by our sense of danger ; for, as the elephants roam about in all directions, and in

considerable numbers—and as the information we had received from the people of Kway-ake-poay led us to believe them in our neighborhood, we were in constant alarm of being surprised, and advanced with proportional suspicion and caution. Four or five spots were pointed out by our guide where travellers had fallen victims to their rage. We had sufficient proofs of the devastations around us that they were not mere idle stories. Nor was this all, for on coming to a turn of the road, whence we could see our way onward for some distance, two elephants were seen crossing the path and soon wandered out of sight. The crash which they made, in passing along, was audible for a considerable distance. The indisposition which they shewed to attack our party was attributable to their being in a herd. A single elephant is said to be much more dangerous.

In conclusion, I have much satisfaction in bearing my humble testimony to the prosperous condition of the Forest districts. Last year, it was a common thing to come across abandoned villages, but now, in the short period of twelve months, we have a large population actively engaged in various departments of manual labor; the cultivation of the land is rapidly extending, houses are superseding tals or sheds, and hamlets are fast becoming thriving villages. Thus the absorption of the energies of the people in industrious pursuits, the general facility of acquiring an honest independence, and the certain fact that industry is the sure way of obtaining something like its appropriate reward, all assure us with a pleasing prospect that cattle stealing, dacoity, &c will rapidly decrease.

The preceding observations render it almost superfluous to add, that our Government, under the able administration of Major Phayre, is indeed highly popular with the Burmese, and that it is increasing daily, as well as a due awe of our authority. This latter is very observable, and in no place better exemplified than in the Tharawadie district, which, under Capt. Browne, has rapidly been retrieved from a scene of rapine and outrage of the most daring description, to one of the most perfectly comparative security and good order. The condition of the interior districts when first we took possession has too often been brought to notice to require further details. Property had long been insecure from the inroads of dacoits, and life in daily, nay hourly peril; but the scene has changed, thanks to a strong Government.

Rangoon, 20th November 1855.

APPENDIX TO MEMORANDUM OF A TOUR &c. IN 1855.

THE THARAWADIE FORESTS.

In drawing up this paper on the Tharawadie Forests, I deem it proper to state that I availed myself of much information afforded me by the Kareens and Yaibanes residing in the Thoun-zai Forests, whilst in the suite of Dr. McClelland on his tour through the Southern Forests of Pegu. I received also much information from the Forest Goung Ko-Mho, whose long familiarity with the people of Tharawadie has rendered him conversant with the subject.

But previous to entering on the subject of the Forests I am about to describe, I deem it proper to remark, that the people of Thounzai, Onkkan, and Pegu are very jealous of their knowledge, and that it is very difficult to obtain direct answers to questions put to them, and when they gave them, they were so obviously imperfect as to render the greatest caution necessary in receiving the information they so reluctantly imparted.

The conclusions drawn in the following paragraphs are from facts which are incontrovertible, and an examination of the notes now presented to them will bear me out. Personal examination of the Forests by competent authorities may induce me to alter many of the conclusions I have

drawn, but still I conceive that I ought to throw my mite of information into the heap, and leave others to increase, though insensibly, the store already gathered, in the same manner as travellers, in certain countries, raise a monument over a particular spot, by each throwing a stone upon it as he passes by.

To develop the resources of our acquired and unexplored Teak Forests, and to satisfy the curiosity of knowing their natural boundaries, the mountains or plains whose picturesque appearance, or whose fertility we daily contemplate, lead often to researches which, if they

DISPOSITION OF
THE INHABITANTS OF
THE LARGE TOWNS
LYING IN THE VICI-
NITY OF THE FOR-
ESTS.

INFORMATION
FOUNDED UPON
DATA.

yield no greater benefit to mankind, tend at least to improve the mind by enlarging the ideas.

It is fair to believe that the Tharawadie or Sarawaddy Forest tracts situated near the Myikmakha or Kouk-than stream, and west of the great Yomah range, ranked, since the latter end of the seventeenth or commencement of the eighteenth century as Royal Forests; but as no exact notions can be gained from the Yuhzahwins (Burmese writings) in regard to them, the regal designation given in the name of the grandson, Tharawadie, by the reigning king Ma-du chu (the Lord of Earth and Air; the monarch of extensive countries; the proprietor of all kinds of precious stones; the king who performs the duties incumbent on all kings; the master of the white, red, and mottled elephants, whose praises are repeated as far as the influence of the sun and moon extends) amounts to nothing more than a Bwai or appanage.

It would appear from the foregoing that, that part of the country was assigned to Tharawadie as his inheritance. Assuming such to be the case, he was probably the superintendent or the Lord and Ruler of those Forests. I have, however, not discovered that he, individually, derived any pecuniary advantage therefrom, but it is probable that some of his favorite mistresses, to whom such grants have been made in other portions of the empire by the king and princes, or some favorite secretary, have maintained themselves with dignity or superiority.

But to return from this digression.

There are authenticated traces of the existence in the beginning, of local agents, or gongs, in inseparable numbers in that part of the forest district. These men notwithstanding were cultivators or herdsmen, yet they appear to have derived considerable emolument in the shape of presents from the timber cutters, and moreover monopolised the supplies of buffaloes for dragging timber, charging a rupee for a felled log, and also imposing a duty by receiving every tenth log and exacting two annas a piece for registering fees.

It is to be borne in mind that these herdsmen were more or less connected with the mercantile community of Rangoon. The revenue derived was no doubt immense, and, on not transmitting it, with due precision, they were degraded, and in some in-

THE EXISTENCE OF
LOCAL AGENTS, IN
THE FORESTS.

FOREST GONGS
INTERESTED IN THE
TIMBER TRADE.

stances their heads paid the forfeit.

It might be interesting to trace the exact limits held at different periods by the various gongs of that portion of the district now under notice, and to submit the observations of particular men in chosen localities, but it is necessary to condense and arrange such a conglomeration of notes.

I will first give a general outline of the Tharawadie Forests, with a delineation of the features of the country, their capabilities, rivers or choungs, and mountains; the better to guide the adventurer, capitalist, or mere tourist.

The great geographical feature of the Tharawadie forests, is the chain of the Yomah, or the back bone of Pegu, which divides the valleys of the Irrawadie and Sittang. The streams which descend from its western slopes feed the Myikmakha or Kouk-than stream. It descends in a southerly course and flows almost parallel with the Irrawadie, at a distance of from eighty to ninety miles and disembogues itself into the Lahakin swamp. The Toung-nyo, Sin, Mimboo, and Myolah pay tribute to it. The several radiating spurs or off-shoots of the Yomah form the Lhine valleys but their slopes are steep and difficult. The forest tracts, now under notice, come within the range, clothed with every description of dense jungle, and more or less covered with teak trees.

The passes into Toung-hoo are numerous, but are said to be winding and rugged, often filled with thick jungle. Beeling pass is the first of any importance; a route from whence conducts the traveller both to the Bawnee and Toung-hoo districts.

These forests are ramified by the Koukthan, Htoo, Minlah, Mokekha, and Beeling. I am informed, that they do not, in all cases, occupy the centre of the valleys, but incline or bend their course to either side, according to their windings; and thus the flats are of greater or less extent according to the distance of the choungs from the bases of the hills. These valleys are distinguished by the names of the streams which drain them, as for instance, Koukthan choung, the valley of Koukthan; Htoo choung, the valley of Htoo; and so on.

The choungs I have mentioned above—Beeling excepted—are properly speaking, navigable in the rainy season for rafts, canoes, and boats of light draft, when the rivers rise from forty to sixty feet and upwards.

Teak forms an important item in the spontaneous productions of this place. The forests lie in the northern part of the Tharawadie district, and are said to be very little worked. The dacoits from Dalla, Rangoon, and other places found an asylum here, from whence they set the law at defiance, for, even while the province was in the possession of the Burmese, the Governor's *amain* whether of Rangoon or Henzadah did not extend to this place.

A little sprinkling of teak trees is found six or eight miles from Lahakin. The further one proceeds, the country displays rich tracts of teak. The streams which flow through them are called after them, and are tributaries of the Lahakin.

These forests begin about Leppardan village. The choupung which bears the same name is blocked up, ten miles below its source, with an extraordinary accumulation of immense blocks of stone, and this renders it difficult to convey large timber down. An outlay of five hundred rupees, I have been informed, would be sufficient to remove the obstruction. The lower forests are quite exhausted, but above the rapids, there is still a considerable quantity of teak.

Of the other kind of forest trees occurring, the following are the popular names of the principal ones in general use with the natives in the construction of houses, &c. They are, Pyinmah 1, Padouk 2, Mazalee 3, Banbwai 4, Thingan 5, Yindike 6, Pyinkadoe 7, Shahbin 8, &c.

Pyinmah is a very durable timber, and is generally employed by the Burmese for house posts. It is the *Lagerstramia regina* of botanists.

Padouk (*Pterocarpus dalbergioides*) is highly esteemed, and it is susceptible of a high polish. It is principally employed by carpenters for making superior articles of furniture. It is not extensively used on account of its great weight.

Mazalee (*Cassia Sumatrana*) is not very much in demand, although it is every where to be met with in the Forests, and possesses the same qualities as Pyinmah.

Banbwai (*Careya arborea*) produces a valuable timber, and is found in abundance. Cart wheels are sometimes constructed of it, and are also used in house building.

Thingan (*Hopea odorata*) is considered by the natives a valuable timber for boat-building.

Yindike (*Dalbergia*) is employed for making handles for *dahs* and other carpenter's tools.

Pyin-kadoo (*Inga xylocarpa*) is a very hard and durable wood, and generally used for the polished posts of Kyoungs or monasteries.

Shahbin (*Acacia catechu*) is a very close grained wood, and generally used in Tharawadie for small house posts.

Numbers 2, 6, and 7 do not float even after they are killed, and thoroughly seasoned or desiccated, as their weight exceeds that of water.

The following statement will show, at a single glance, the contents of the Tharawadie forests. It must be remembered that the calculation I have made can only be considered as an attempt to give an approximate numerical value to trees found here.

SEASONED TREES.

Above 6 feet.....3,900.

Below 6 do..... 7,600. 11,500.

STANDING GREEN TREES.

Above 6 feet.....43,500.

Below 6 do.....83,560. 127,060.

Total of all.—138,560.

Thus the Tharawadie forests contain eleven thousand five hundred seasoned teak trees, of which three thousand and nine hundred are above 6 feet in girth, and of the remaining seven thousand six hundred I may safely take two thirds as undersized, and one third fullsized timber. Of the number of green trees it is not to be inferred that I have included young trees which are numerous. Further experience, and the employment of Goung-gwais to count and examine the trees in each forest, will enable the forest department to give a correct detail. In the mean time the information acquired, I trust, will be satisfactory to check proceedings in those localities.

From the computations I have made, I should estimate that, for the next century, there would be enough of teak timber available for all purposes, and these forests looked upon as of incalculable advantage—nay, a perfect mine of wealth to the Pegu province; that is, negatively, by obviating the necessity of cutting yats or trees that approach to full size. Mr. Conolly, late officiating Collector in Malabar, in a statement to his Government, calculated that the average number of teak required for the public service of Madras and Bombay, supposing that one government vessel would be constant

under construction at the dock yard at Bombay, would be six hundred candies or about 2000 trees. As teak reaches maturity in about sixty years, I should consider the Tharawadie forests quite equal to the supply and capable of yielding annually one thousand two hundred candies, or four thousand logs, without injuring the forests.

Much has been written by professional gentlemen in the service, regarding teak shedding its seeds at certain periods, and the measures to be adopted by sowing them for reproduction, but when the large amount of seedlings is taken into consideration, the systematic plan of cultivation would be but mere waste of time and labor, as these seedlings would secure to the province a future resource,

TEAK SEEDLINGS
BEING NUMEROUS,
SUGGESTIONS FOR
THEIR PRESERVA-
TION.

upon which the commercial interests must necessarily depend for many years to come. The practicability, therefore, of perpetuating our teak forests lies in instituting measures to prevent the Foresters from cutting undersized trees, and dragging their timber at random; the latter reckless system—experienced persons informed me—destroys hundreds of plants. Foresters in dragging a tree, never go out of the way, although the track may be covered with young teak. A strict prohibitory order is therefore absolutely necessary, now that the Tharawadie Forests have been thrown open to the public until the 1st January 1856, and I advocate that all delinquents be punished with fine and imprisonment in proportion to the extent of the transgression. Thus the teak trees will be preserved from destruction, the state collect the revenue, and the public obtain valuable timber.

Here I must close my observations on the Tharawadie Forests with a paragraph from the deposition of our Goung Ko-Mho, with reference to felled logs.

“With regard to the number of felled logs lying in the Tharawadie Forests, I have seen about two thousand logs of excellent size in Kouk-than; in order to make good my assertion I can bring the whole of this valuable timber if the superintendent authorise me.”

That portion of the Tharawadie district lying near the Myik-makha river, is famous for its low swampy plains. They consist of land of the richest description—*humus* or soil proper, that is the fine accumulation of vegetable matter; some are in a state of culture, and others recently abandoned convey a high notion of their former richness and prosperity; but the greater portion have fallen to their original type and

CHARACTER OF THE
PLAINS AND THE
NATURE OF THEIR
SOIL.

are now covered with grass jungle, but scattered with the ruins of former villages. Those in particular on the Beeling and upper Kouk-than streams, which were formerly very populous, and yielded a large revenue derived especially from silk, manufactured by the Yaibanas—are now almost abandoned to nature.

The occupied villages in the Tharawadie Forests are for the most part open. Some of them, however, have fences of bamboo spikes, offering a good defence against robbers and wild beasts. The houses are constructed of bamboos, and thatched either with the leaves of the *Livistona* or *Licuala*, and are not roomy, and this latter is on every account better adapted to keeping out wind, heavy rains, and dews.

The decline of this district from the flourishing condition which it had attained in the Burmese time, is owing to the breaking out of the late hostilities, when the poor people were plundered by dacoits or cattle stealers. This calamity was followed by famine in 1852-53, and their ruin was consummated by the ravages of Moung Goung Gyee, the robber chief, and his followers.

The vigilance of our Government in Pegu has completely annihilated or extinguished the remains of these disorders, and the protection now afforded to the unfortunate sufferers has, in a great measure, restored the tranquillity and prosperity of the forest district now under notice. The cultivators at present enjoy what is left them in peace and without molestation, and that this feeling prevails throughout the province is noted by gentlemen having dealings with them. Mr. Fowle, the Government Contractor of the Southern Forests, once informed me that, on account of the advantageous terms granted to cultivators by our Government, cultivation seemed to absorb all the faculties of the laboring classes. Buffaloes and men consequently were in demand, and it was with the greatest difficulty the services of either could be got for the removal of his timber from the Forests farmed out to him by the Forest Department.

• R. ABREU,

Head Asst. to the Offg. Supt. of Forests.

• RANGOON,
The 30th November 1854.

B

APPENDIX TO MEMORANDUM OF A TOUR &c. IN 1855.

TABULAR STATEMENT showing the Quantity of Seasoned Timber contained in the Forests of the Sittang Valley, the Prome and Tharawadie Districts.

Names of Choungs.	- NAT-THAT.				KILLED.				FELLED.				Total.	Grand Total.
	1st Class, mea- suring 7 feet and upwards.	2nd Class, mea- suring 6 feet and upwards.	3rd Class, mea- suring 4 feet and upwards.	Total.	1st Class, mea- suring 7 feet and upwards.	2nd Class, mea- suring 6 feet and upwards.	3rd Class, mea- suring 4 feet and upwards.	Total.	1st Class, mea- suring 7 feet and upwards.	2nd Class, mea- suring 6 feet and upwards.	3rd Class, mea- suring 4 feet and upwards.	Total.		
Upper Koon.....	66	80	123	269	19	55	19	83	89	122	131	342	663	
Lower Koon or Anánbow..	50	25	30	105	55	68	60	144	0	0	0	0	234	
Phyew, above the Rapids,	223	180	209	612	68	83	49	199	192	209	328	729	1511	
Ditto, below ditto,.....	6	0	0	6	33	38	33	99	9	7	8	19	124	
Banlong,	0	0	0	0	30	10	100	140	0	20	0	20	160	
Khaboung,	420	370	495	1285	0	0	0	0	0	0	0	0	1285	
Thoukyaighant,.....	100	0	129	229	60	60	80	200	50	100	179	329	749	
Yonkthawah,.....	30	40	40	110	115	130	50	315	53	50	40	143	568	
Kanee,	50	90	170	310	70	120	220	410	35	60	46	141	861	
Kareen,	40	42	50	132	250	300	375	925	47	40	54	141	1198	
Gwaithai,	30	40	50	120	0	0	0	0	20	40	50	110	230	
Bynbyai,	30	40	50	120	20	20	20	60	20	30	40	90	270	
Myollha,	30	50	60	140	20	20	20	60	40	50	60	150	350	
Dounglangya,	30	40	50	120	20	20	30	70	20	30	40	90	250	
Swa,	159	173	184	516	194	225	190	609	174	262	182	618	1743	
Koon-oung,	35	55	50	140	0	0	0	0	240	445	930	1015	1155	
Total,	1399	1225	1681	4205	954	1057	1204	3245	959	1465	1483	3987	11357	11357

APPENDIX TO MEMORANDUM OF A TOUR &c. IN 1855.

TABULAR STATEMENT showing the Quantity of Green Timber contained in the Forests of the Sittang Valley, the Proms and Tharavadie Districts.

NAMES OF CHOUNGS.	GREEN TREES.					Total.	(Grand Total.
	1st Class, mea- suring 6 feet and upwards.	2nd Class, mea- suring 5 feet and upwards.	3rd Class, mea- suring 4 feet and upwards.	4th Class, mea- suring 1-6 foot and upwards.			
Upper Koon, °	904	1549	3545	6148	12446		
Lower Koon or Ananbow,	270	475	1800	2520	5065		
Phyew, above the Rapids,	2471	3669	4822	7990	18952		
Ditto, below ditto,	228	193	480	2180	3081		
Banlong,	200	50	1200	3005	4455		
Khaboung,	1670	2750	3800	5126	13326		
Thoukyaghuat,	1500	2000	3000	4820	11320		
Yaukthawah,	222	1210	8000	13009	22141		
Kanee,	900	1600	950	1700	5150		
Kareen	1500	2500	5500	6850	16350		
Gwaithai,	100	200	300	408	1008		
Byinbyai,	500	60	700	1302	2562		
Myolha,	400	600	700	983	2683		
Dounglangya,	300	500	600	1065	2465		
Swa,	1060	16800	50050	60000	127050		
Koon-oung,	950	1950	3650	6360	11910		

FORESTS. FROM	Northern Nawing, .....	..	..	..	2044	3119	4480	6700	16343
	Chongzouk, .....	..	..	..	295	285	315	600	1495
	Middle Nawing, .....	..	..	..	1900	3200	4700	6000	15800
	Southern ditto, .....	..	..	..	2510	3599	4778	5000	15912
	Shoay Lai, .....	..	..	..	1700	3200	5100	7000	17000
Total, ..					8479	18403	19368	25300	66550
FORESTS. DAWNER	Kawleyah, .....	..	..	..	195	183	1580	2000	3958
	Binedah, .....	..	..	..	130	88	1330	3196	5044
	Yanoay, .....	..	..	..	140	147	2700	4024	7011
	Total, ..				465	418	5610	9520	16013
	Toungnyo, .....	..	..	..	7000	3500	7400	6500	24400
FORESTS. TERRAWADIE	Sin, .....	..	..	..	0	0	0	300	300
	Mimboo, .....	..	..	..	5000	2100	3200	3200	13500
	Myolah, .....	..	..	..	3000	1067	2733	1700	8300
	Htoo, .....	..	..	..	7000	4066	9834	7300	28300
	Minlah, .....	..	..	..	3500	2520	5040	5000	16060
	Mokekha, .....	..	..	..	8000	4000	8000	9000	29000
	Beeling, .....	..	..	..	10000	10000	20000	13000	55000
Total, ..					43500	37853	55707	45000	175000
Total of Green Timber,									529917

JOURNAL OF A TOUR &c. IN 1856.

The following journal of a third—and to me, the last—tour through the Pegu Forests, was undertaken on the advent of Dr. Brandis as Superintendent of Forests in Pegu Province, consequent on Dr. McClelland having proceeded on sick leave to Europe, leaving me in charge. Dr. Brandis received over charge of the office on the 30th January 1856, and immediately after, with a view to acquaint himself with the productive resources of the country as regards his particular office, resolved on a tour through the Forests. Accordingly, that Officer and myself started from the flotilla yard at Rangoon in a boat, on the evening of the 15th February 1856, to meet our party sent some days previous overland—to the city of Pegu. We glided noiselessly with the tide, and as the sun sunk on the western horizon, we passed by the ancient town of Syriam.

During the Christmas holidays I had visited Syriam, having come out on a pic-nic party. The primary object, however, was to examine the vestiges of the Catholic Church. This town at one time must have been fortified by a formidable earthen wall, but there are now only a few detached pieces of this ancient circumvallation to be met with, and two or three gateways. On a detached eminence stands the Church. It is delapidated, but a truly imposing edifice constructed of burnt bricks. The walls are of immense solidity. All the arches had been originally supported by doors and windows, but these have nearly all yielded to the ruthless attacks of time. The church commands also a fine prospect for several miles around, and overlooks a rich tract of level land beautifully diversified by foliage, a waving sea of gigantic grasses, and small running streams. A noble range of the Pegu mountains of fantastic form, is spread out before it in its whole extent, exhibiting a faint view in the blue distance. I leaned against a tree to admire this glorious spectacle, with silent but deep emotion upon the land I had trodden upon with Dr. McClelland in 1854. No description of mine can give an adequate conception of this Christian relic of past ages, the foundations of which are supposed to have been laid long prior to the reign of Alompra. Whoever selected the location for the building exhibited true taste. A person may give full scope to all the romance and poetry of his imagination, for, in such a field as this, none but a rebel to nature, and undeserving of her pleasures could remain indifferent to the charms spread in lavish profusion around. At one point, I observed the gay and graceful

Peristylus, *Eria obesa*, *Pholidota*, and *Abrus precatorius*. The last bears a small red seed with both black and white eyes; it is called in Burmese *Yuai*. In another point, from amidst a tuft of humbler beauties, the *Mangifera indica* was seen with arboreous branches, neatly apparelled with the *Trias oblonga*, and in the bamboo clumps overhanging the elegant *Lygodium scandens*. At the foot of the mound several small rills were skirted with the blue and purple hues of *Pontedera vaginalis*, *P. dilatata*, and *Ludwigia parviflora* intermixed with the large leaves of *Colocasia antiquorum*.

At day-break this morning (16th February) we found ourselves at a ghaut leading to Thabyew village. I went on shore and found several trees of *Butea frondosa* in their mantle of deep rich golden color. The village is gracefully surrounded with trees of *Mangifera indica*, *Psidium pomiferum*, *P. pyriferum*, *Zizyphus jujuba*, *Carica papaya* and plantain. The kitchen gardens were also crowded with *Hibiscus sabdariffa*, *Lagenaria vulgaris*, *Allium sativum*, and *Capsicum*. The external soil of this place, as far as I have observed, is sandy. There is a large tank of good water here, one hundred feet long and forty wide, and a splendid Kyoung make up the tout ensemble. The former is closed almost on all sides with long grass, affording shelter to a species of tiger cat which annoy the people by carrying away their poultry. I was also informed that various portions of the contiguous localities are tenanted by tigers, hogs, and deers. Of birds, there are a numerous variety, *Edolius paradiseus*, *Pycnonotus finlaysoni*, *Oriolus melanocephalus*, *Pastor tristis*, *Polyplectron emphanum*, *Gallus ferrugineus*, *Treron bicincta*, *Ardea alba*, honey suckers, and parrots.

After having satisfied my curiosity, I got into the boat, when away our boatmen rowed, while the sylvan scenery opening on the view was most magnificent. I observed on the banks of the Pegu river *Ixora pallens*, *I. alba*, and *Paritium tiliacum*, the last a large luxuriant bush with innumerable tortuous branches, bears red and yellow flowers. About night fall we arrived at Pegu, but before we came to it, we passed pretty close to two or three villages and ascertained the most prevailing trees to be the *Sonneratia acida*, a *Ficus*, and two species of *Ardesia*, new to me.

17th February.—We were glad to see our camp in. The city of Pegu, as far as it has come under my observation, is fast becoming of commercial importance. This is proved from the resort to it of the Chinese and Surat merchants, and the display in its market of almost all kinds of cloths. A spirit of fashion also predominates, and with it

an appetite for the novelties and superior fabrics of Europe; even amongst the lower classes many males are found little satisfied unless they carry on their heads chintz-muslin what they call *Theurgangeya*, and the women shawls across their shoulders. The superior advantage possessed by Pegu is that of locality. Whether the tide of commerce rolls up the Sittang, its course is generally directed upon that city. The presence of the Assistant Commissioner's Court and a Military force contribute not a little to the bustle and activity to be observed. They also impart life and vigor to many professions. There is not, however, an article made in Pegu which is not surpassed by specimens from Rangoon or Maulmain. It is probable that many of the trades did not exist since the absorption of the Talien into the Burmese Monarchy, and they should not perhaps be even now considered in a state of retrogression, a remark, I presume, applicable to their city. It is cheering to be able to concede that the progression is towards improvement.

18th February.—The excessive fatigue incurred both by men and elephants since their departure from Rangoon, demanded a halt, and as our next march is to be an unusually long one, we remained at Pegu to recruit for the forthcoming labors, and enjoyed a day of rest.

Man longs, within a short space of time, to satisfy a thousand desires, each of which alone is insatiable. One month passes and another comes on, the year ends and another begins, but man is still unchanging in folly, still blindly continuing in prejudice.

I have been led into the above remarks consequent on the general complaint of the foresters, and especially the Peons of our establishment, of not finding a place of repose during their journey. I find, however, from experience that they are in the wrong—they have it for the seeking. What they should complain of is, that the heart is an enemy to the very repose they seek. To themselves alone should they impute their discontent. To the intelligent or sensible man, every climate, and every soil is pleasing; to him a parterre of flowers is the famous valley of gold; to him a chouring or running stream is the fountain of delicious fruit trees; to such a man the melody of birds is more ravishing than the harmony of a full concert, and the tincture of the clouds preferable to the touch of the finest pencil; in the words of the immortal bard,

“ All places that the eye of heaven visits,
Are ports and happy havens.”

the life of a Forester is a journey which must be travelled, however,

wretched the road or the accommodation. If in the beginning it is found dangerous, narrow, and difficult, it must grow better in the end, or we shall by custom learn to bear its inequality: but though these complainants may be incapable of penetrating into grand principles, they should at least attend to a simile adapted to every apprehension. A poor Kareen is stooping under his heavy sack carrying a few necessaries of life to his home in the mountains, and is compelled, so long as he drags on his existence in this world, to repeat the same process from time to time, whilst we are six or eight months in a year (during our stay at Rangoon) surrounded with every convenience. We should therefore learn to pity the state of the former, and thank heaven for our own.

19th February.—Started at 3 o'clock A. M., route due N. and after a journey of eight miles over a flat country, encamped at Phrawgyee village. The evidences of this place having been formerly an extensive district, are many and considerable. The most remarkable are the remains of Pagodas. They are picturesque in appearance, although bare and desolate, as well from the form and disposition of their construction, whose sides are furrowed by the channels silently worn in them by the rains. The traveller surveying them will scarcely fail to be absorbed in deep reflection: while their contemplation will call forth various interesting associations in his mind, as these remains themselves have a peculiar solemnity from their lonely and startling evidences of past grandeur. Besides these primary objects, I discovered a marble slab with Talien inscriptions, but they proved to be pious sentences. I have been informed that excavations have been sometimes made by the inhabitants of the vicinity, and masses of mutilated and effaced manuscripts are said to have been found, which are plausibly supposed to have been archives, and are written, it has been asserted, in Talien characters.

The village of Phrawgyee,—consisting of only eight houses—lies about hundred yards from our encamping ground. The tracts of land contiguous to it are uncultivated. I understand that the Coromandel Coast swarms with an exuberant population, without adequate employment, and scarcely with the means of subsistence. Would it not be provident for our government to encourage emigration? It would, indeed, render the waste lands of our province susceptible of making splendid returns in revenue to the state and in commerce. It may, however, be remarked, that in every wise government, every well-governed state, the tilling of lands and the grazing of cattle—two perpetual

and certain sources of riches and abundance—have always been the chief objects of the care of those who preside in the administration: and that the neglect of either, is erring against one of the most important maxims of sound policy and good government. In this respect, I admire the wisdom of the ancient Egyptians in esteeming the husbandman and those who took care of flocks. It was no doubt to the two professions that their country once owed its riches and plenty; and the hypothesis is, that it will always be so with every kingdom, whose government is directed to the public welfare.

The Forest about this place showed an underwood, its green and graceful appearance was striking, and consisted of *Dalbergia*, *Dipterocarpus turbinatus*, *Lagerstræmia regina*, *Careya arborea*, *Strychnos nuxvomica*, *Odina wodier*, *Phyllanthus embelia*, and *mangifera indica*. *Butea frondosa* appeared to be the prevailing tree, on some of which *Acacia rugata*, a magnificent creeper, was observed to rest or spreading out the structure of its stem, and throwing down its pods. These pods, which are filled with numerous dark brown seeds like those of the tamarind, are boiled in water by the Burmese and used as a substitute for soap in cleansing their hair; the leaves are eaten also by them as a condiment to their *ngapee*. I have myself gathered the leaves and dressed them for my curry, and can recommend them as a wholesome and delicious dish.

20th February.—Our journey was performed by the bright moonlight, and the whole vault of heaven was glittering with stars; every thing looked so still and lovely, and that peculiar air of softness that moonlight gives, veiled every point one does not wish to see, and revealed only what is most striking.

“ Heaven's ebon vault,
Studded with stars unalterable bright;
Through which the moon's unclouded grandeur rolls.”

We proceeded over waste and open sandy plains, our route for nine miles being due North, ascending a little and then into a regular swamp, and found ourselves at daybreak between majestic woods. The scenery here was of another cast of beauty, consisting of arboreous trees of a mixed kind. From their small growth, I should imagine that they are not older than thirty years, and which would indicate that the area occupied by them was formerly under the plough, and more thickly peopled than at present. If population and cultivation thrived and flourished here before, why not now? The following were the trees observed to-day:—*Careya arborea*, *Dalbergia*,

Diospyros melanoxylon, *Stychnos nux vomica*, *Melicoca trijuga*, *Dillenia augusta*, *Phyllanthus*, and two species of *Lagertrania regina*. After travelling for seven miles more in a N. N. W. direction, we reached Maoudan village of twenty houses and encamped. Here cultivation was again contracted, and appeared to me to be confined to one side of the stream only.

21st February.—Entered the forest, which is beautifully interspersed with small patches of teak, associated with other trees observed yesterday; but *Dipterocarpus turbinatus*, varying in height from sixty to one hundred feet, and from ten to fifteen in girth, occurred frequently, and some with the dark and withered timber—apparently having been overtapped for oil—extended their naked aged arms over the verdant coppice enamelled with a golden solar radiance. An hour after sunrise we passed through Bawnee village, a person calling himself Goung or Headman of the place came out to receive us. He was an old man of sixty, lean, and with a most villainous countenance. He intimated to us the non-existence of teak in his district; which we, however, met with near the road not long after leaving the village. We travelled to-day ten miles in a N. N. W. direction, and pitched our tents on the margin of Poaytamoh choung—a branch of the Bawnee river—in a splendid forest, on a clear and sandy ground.

22nd February.—Passed through several patches of healthy teak. On account of the propitiousness of the soil (grey sandy dry resting in slaty clay) it was gratifying to observe that scarcely any imperfect or mal-formed trees were found here. The presence of vigorous young teak and seedlings is a characteristic mark of the Bawnee forests. The only way of getting up a new forest would be by clearing the underwood and other forest trees where young teak abounds, and as for the rest, nature would take the task of rearing the same for future supplies. From the number of young teak trees found growing in every direction, there is no reason to apprehend a want of teak for the future, as these would rise to fill up and supply the places of the parent trees when girdled and cut for our market.

We came to Kyouktalone, a village on the Kawleya stream, about 9 A. M. Here we encamped before a fine bamboo zayat, canopied by the luxuriant foliage of magnificent teak trees. This fabric is fast going to decay. A small out lay on the part of Government would preserve it for some years, and at the same time show to the natives—who almost exclusively use these buildings—that their comfort and welfare are not always set aside or forgotten by those who

rule over them. Houses of this description are either attached to pagodas or erected on the road. Their purpose is both civil and religious. They constitute a kind of caravansary for the accommodation of travellers and also for religious purposes, such as preaching and disputation.

We arranged a plantation of teak near the Goung-gwai's house, the seeds having previously been boiled in water, and mixed with ashes. A Burmese proclamation was thereupon issued to the following effect.

"The Superintendent in his tour to the Forests, having on the 22nd February 1856 arrived at Kyouktalone, he accordingly proceeded to establish a teak plantation of fourteen feet square near the Goung-gwai's house, and having placed him in charge of it, parties are warned from molesting it under pain of being prosecuted."

23rd February.—We went down the choung through a thriving teak forest, and after ten miles walk halted at Pyinbone, a village of ten houses, situated along the bank of the plashy Kawleya. The numerous reeds and shrubs fringing the tributaries of this stream gave a feature of loneliness to the prospect, which required the strength of association to relieve. Numerous were the tracks of tigers on their arenaceous beds, which from such tokens must be very common, although they are seldom seen, and I learnt, seldom do harm.

In this day's march, I observed three stages of vegetation peculiarly marked. First was a real forest with large trees of *Careya arborea*, *Lagerstræmia*, *Dalbergia*, *Grewia spectabilis*, and *G. Hookerii*. I also came across much underwood, in many places, which appeared to be impassable.

Next, and intermediate were found growths of smaller or undersized trees of *Strichnos nux vomica*, *Photinia seratifolia*, *Lagerstræmia regina*, and *Mangifera indica*.

Lastly, the whole extent of country around Pyinbone village seemed to be a general level, overgrown here and there with elephant grass, forming a marshy land watered by the Kawleya, whose slimy banks were covered with sedges and other noxious weeds, evincing in their very form their sickly nature, and indicating by their numerous but sickly twigs and branches, how much they require the vivifying influence of the sun, and of a purer atmosphere. However this place may be adapted for rice cultivation, it appeared to me to have been shunned by teak, in fact, the other trees partook of the same quality. In a marshy and unhealthy country like Pyinbone we

might expect intermittent and remittent fevers to prevail throughout the year, the phenomena of these diseases being in general ascribed to the action on the system of decayed vegetable matter.

The first thing that strikes a stranger on arriving at this place, is the complexion of the inhabitants. They have a strange, unearthly, yellow tinge, with sunken eyes and a shrivelled form, facts which speak more than volumes for the pernicious effects of marsh miasma. Fever and ague have set their seal on almost every face, and with so indelible a mark, that they are easily distinguished and pointed out from any other villagers. Improvements in agriculture, especially drainage, will certainly banish these diseases where they are now endemic. •

24th February.—Our road lay through thick long grass, in which we were completely buried, and the heavy sand and marshy swamps rendered the march one of more than usual toil. Our guides plunged into the jungle, leading us through paths utterly invisible, and the noise they made as they crackled the thickets, were all the indications we had of our route. The verdant curtains of the grass jungle—which we thrust aside in order to pass—closed immediately behind each of us, leaving the stragglers to discover our course by the disturbed waving of the grass, and the voices of the guides. But for the buffaloe tracks with which the place is furrowed, and which are exceedingly perplexing to the bewildered traveller, we might have imagined that no human creatures but ourselves traversed this labyrinth during this year, where, more than once, the guides mistook the way, to our infinite dismay and discomfort. These thick bushes would, in the course of a few years, render the roads impassable, and the forest impenetrable, but the natives take a wise precaution year after year, to set fire to them.

I observed this day about two miles distance from Diko-on village, flames of fire, from which enormous clouds of smoke issued, and advancing rapidly into the fields, penetrating without any resistance—the thick jungle, and leaving behind them heaps of ashes and cinders. This spectacle has in it something very grand and awful, especially during the night. A crackling frame bursting forth in torrents, and rising as it were to the clouds; a black and thick smoke bordering the horizon, and adding to the obscurity; the powerful effects of the light, and the paleness of the moon, are all objects which, when contrasted, present a scene sublime in the extreme but terrible to the imagination. The animals fly to every quarter, some become a prey to the flames, and their lamentable cries are heard at

a distance, creating terror and confusion everywhere: though the villagers take care to provide for their own safety, it sometimes happening that the whole of their houses are consumed in the general conflagration.

Through the greater part of this day's advance, cultivation of any kind was invisible. The plains of Dike-on are, for the most part, of a black, thick, and very friable soil, as well as exhaustless fertility. In certain latitudes it is the best soil for rice and maize, though they rear *Saccharum spontaneum* of astonishing height and luxuriance. An exact account of the size and rankness of the weeds, flowering plants, and grass on the richer plains, would seem to those who have not seen them, an idle exaggeration. They indeed impress the eye as a dead level, but still have their slight inclinations and depressions, where their waters are arrested and carried off; yet from the immense amount of vegetation, and from the geniality of their surface wherever they are considerably extensive, they have ponds which fill from the choungs and from rains, and are sometimes exhausted during the intense heat of March and April by evaporation. These ponds, or as they are called *ims* by the Burmese, are connected with the choungs, and are filled in the season of high water with fish of various kinds, and as the waters subside, and their connecting courses with the choung become dry, the fishes are taken by the Government *inthamas* for making salt fish, *ngapee* &c. &c. During the curing and manufacturing season the place becomes a source of pollution to the atmosphere; hence these plains, beautiful as they seem to the eye, and extraordinary as are their fertility, are very unfavorable in point of salubrity.

The *ims* of the place abound with excellent fish of various kinds, viz. two or three species of *Ophiocephalus*, *Percine*, *Gobius giurus*, *Notop-terus Kapirai*, *Clarias punctatus*, *Systomus*, *Abramis*, *Mastacembelus*, *Cirrinus calabasu* and *Cyprinus rehiia*. The last named is generally smoked and dried in large quantities for exportation. I have seen no snakes about the place, but the villagers assured me that both venomous and innocuous serpents abound.

We came to Dike-on village about 10 A. M. after having accomplished a journey of eight miles. I made acquaintance with a Talien doctor named Ou Shbay MOUNG, who had been a resident here for many years, and had extensive professional practice, almost all the inhabitants of the Bawnee district patronising him. I had, at first, hoped to have gathered from him some interesting particulars relating to the country in which he had taken up his abode, but I

found him so exceedingly ignorant, that all attempts to obtain information from him was perfectly useless. He did not, however, fail to make me acquainted with the high opinion he entertained of his own abilities in the healing art. Among other wonderful cures which he pretended to have effected, he told me that he had many times stopped the progress of Cholera, and that, to the efficacy of his medicines, his patients had always recovered. The exterior of this disciple of Esculapius indicated that he had made a small fortune by his profession, as the very name of physician, *Sai-tha-mai*, inspires themselves with a degree of respect, which always turn to the advantage of those who bear it. The imperturbable assurance with which these learned personages deliver their opinions, and their drugs, make them easily pass for supernatural beings, gifted with the mysterious faculty of discovering and curing every kind of disease that flesh is heir to.

25th February.—We were occupied this day in examining the obstruction in the chong of this place. The banks are neither high nor steep, and almost the whole bed is occupied by water to the depth of two or three feet, and the current slow. They are partially clogged up with branches and trunks of trees, which had fallen in from time to time, as well as the encroachment of bushes.

The banks of the chong are composed of light loam and sand, and is covered with jungle trees. A variety of underwood is also interspersed, and forms an almost impenetrable thicket for some miles on both sides. During the rains, the chong on that part, as well as lower down, overflows and tends to fructify (so I was told) the soil within its reach. We were very much annoyed during the excursion, with the sting of a species of *Formica* called by the Burmese *klajim*. These little creatures construct their nests on trees, and to punish them for their boldness, our peons pulled them down and made a feast of them with a vengeance.

26th February.—Proceeded in a N. E. direction, and after a journey of twelve miles, we encamped by the side of a Kyoung not far from Samphai village, not being able to ford the river, as in many places it was deep, and the road heavy, as to render it necessary to deviate considerably from the highway. In one of these swamps I found *Nymphaea rubra* with rose colored flowers, in abundance. The natives are very fond of the roots of this plant, which they eat green. The seeds, when intended for exportation, are dried.

The Phoungyee of the Kyoung, in the course of a conversation

which Dr. Brandis and myself had with him, appeared anxious to know the reason why the former wore spectacles, remarking with a grin that it was surely not on account of old age. I explained it as well as I could, and he seemed greatly pleased with the ingenuity displayed in rectifying shortsightedness. Nothing, however, would satisfy him until he had tried them on, but being an elderly man, he could not, as was to be expected, see any thing with them.

It would be difficult to give a just idea of the richness and beauty of the environs of Sanphai village, and the Kyoung contiguous to it. It is distinguished for rice fields and the excellent roads cut through them. A cluster of tamarind and mangoe trees decorate this charming landscape with their thick foliage; numerous buffaloes were grazing in the plain; a crowd of people were occupied in their different labors; and the finest and most exquisite sky crowned the smiling scene. The surrounding villages are easily distinguished by the thick tufts of trees which encircle them, and the eminences on which they are generally situated, to secure them from inundation. Thus elevated above the rest of the country, they overlook the rich harvest when it is covered, and judging from the congenial air of tranquillity and happiness, their inhabitants are sensible of the abundance which reigns around them. One circumstance alone seems to throw a shade over the picture, and it is the unfortunate necessity which compels the villagers every evening to gather their flocks together, and shut them either in the interior of the village, or close to their houses, to secure them from the nocturnal attacks of buffaloe stealers, or *Kway-thaloes*.

27th February.—At 2 a. m., we were again in motion. A beautifully bright and clear constellated sky enabled us at the commencement of our march, to pick our way with some feelings of security. At day break we found that we were on the Shoay-Gyeen road, which, in obedience to the capricious indentations of the country, was serpentine. Few high roads in the Sittang valley are more favored than this; few, at any rate, combine in themselves three such elements of natural beauty. The *tout ensemble* of this scene was truly enchanting, and I consider it worthy of the pencil of the greatest artist; the Sittang river on one side in all its majesty, the Shoay-Gyeen mountains on the other with the soft gradations on their wavy eminences as they lap one over the other, and overhead, the splendor of the rising sun. The Burmese, indeed, have done what they could not to disparage, if not to vie with nature. Numerous villages, some gracefully located on the shore, some almost washed over by the silvery waters of the Sittang;

others stretching towards the north extending into the interior with trees of the cocoanut and fields carpetted with verdure, and of which innumerable flocks of buffaloes and cows were grazing. Thus nature, by presenting this delightful view of a rural and pastoral retreat, disposed my heart to its delights, and transported me in idea to those happy ages when men were all shepherds, and knew no other riches but their flocks and the productions of the earth.

A great deal is said of the numerous crocodiles (*Crocodilus vulgaris*) which infest the waters of the Sittang. There are some no doubt, but a much smaller number than is generally asserted. In proof I may mention, that the peons who accompanied us on the tour were continually in the water, and yet we did not lose a single man; and I vainly watched for these animals without seeing one.

We came to Shoay-Gyeen about 9 a.m., after having travelled ten miles, and our entrance into a large station, where we could behold familiar faces, was truly welcome. The change from jungly swamps and forest marshes, from salt fish and rice, and rice and salt fish, to the ways and means of civilized life was looked for by our whole party with the greatest anxiety, and our spirits rose with it.

I partook of the hospitality of a friend, who made me right welcome to it. Accustomed as I had been to such poor food aforementioned—all we could obtain in the villages we passed through—hastily served up on some cracked dishes and plates that had escaped breakage which is one of the immunities of travelling, I was scarcely prepared, though I longed for the change to an elegantly spread table, furnished with a profusion of delicate viands that would have suited the taste of the most fastidious epicure. For my part, I did justice to the repast set before me.

28th February.—Encamped at Shoay-Gyeen, and for the time we remained, I rambled through its streets and suburbs.

The town is situated on the right bank of the Sittang river, and has an extensive well built wooden pier with a handsome roof to secure it against the effects of the weather. In stability and structure, I should think it equal to Godwin's Wharf at Rangoon. Some of the principal roads are long, wide, and spacious, with others crossing them at right angles. The houses are in general more solidly built than is usual with the lower orders of the Burmese. Unfortunately, however, the ground on which the town is built is low, which subjects it to inundations when the river is swollen with the rains. But it seems of small moment to this amphibious nation. In the rear, the ground rises to a comparative height, and besides possessing a most salubrious at-

mosphere, it also affords a delightful view of the surrounding country. This elevation is now occupied as a Cantonment, and it is admirably adapted for the purpose. The private residences of other classes surround it and have gardens attached to them.

At one period the town of Shoay-Gyeen was very populous, but for many years previous to our taking possession of it, the population had much decreased, and at present I should estimate it at about eight thousand souls, exclusive of the Military and establishments.

The Bazar is pretty close to the river bank, extending in a long range towards the Cantonment, and contains a tolerable supply of fowls, ducks, and fish, which are to be had at much lower rates than can be obtained at Rangoon. A great variety of vegetables, indigenous or cultivated here are also found on sale, viz, *Solanum melongena*, *S. lycopersica*, *Batatas edulis*, *Canavalia gladiata*, *Sinapis dichotoma*, *Cucurbita maxima*, *Trichosanthes anguina*, *Legumaria vulgaris*, *Momordica charantia*, *Cucumis sativus*, *Abelmoschus esculentes*, and *Capsicum*. To these may be added the fruits of *Mangifera indica*, *Carica papaya*, *Psidium pyrifera*, *Ananas sativus*, *Zizyphus jujuba*, *Cocos nucifera*, *Artocarpus integrifolius*, *Sandoricum indicum*, *Phyllanthus embellia*, *Anacardium occidentale*, a species of *morinda*, and *Plantains*.

While these sheets were going through the press, I came across a more detailed description of the country, contributed to the *Rangoon Chronicle*, and, I hope, in giving it a more permanent place in this work, the writer will not impute to me motives other than a desire to promote the interests of the provinces which is mainly the object of my present work.

"Shoay Gyeen, in the Birman language means, the "*Golden River*," from the fact that its sands are full of fine particles of gold—for which at certain seasons the Burmese wash—but whether the precious deposits repay is a matter of doubt. The river at this station narrows—and is not so densely wooded as either up or down the stream—From the river, as usual in all Burman villages, rows of houses elevated some feet above the ground line its banks, and are scattered among masses of trees—while in the distance, and rising above the trees, we see the picturesque dome-shaped spires of a few pagodas—and the no less picturesque roofs of Phoungyee houses, which in their architecture (if I may call it such) greatly remind me of the houses in Switzerland—There are the fine wharfs built on the beach (one by a native) which give something of an European air to the river's side. To the S. E. the river which gives its name to the station

falls into the main stream—flowing down from the distant hills. The Stockade lies about a mile inland, on rising ground, the walk from the river's bank to it, through the bazar, (where two fine open markets are built) is very pretty—you pass along a good road, raised above the level of the surrounding country, by a pagoda or so, with those *couchant* figures at the entrance, which so forcibly remind the spectator of the sphinxes and Griffins of ancient Egypt. The stockade is far from a good defence—being built on low ground—but it has been improved since our occupation—by a low long parapet wall to the W. flanked by a three gun Bastion—From this wall you look down, on a wild extent of jungle—the fitting haunt of tigers and other wild animals. It is at present occupied by many officers—the artillery laying here and the 37th Grenadiers (N. I.) just arrived—There are two gates to it, and the whole is surrounded by a trench.

On the rising ground outside the stockade to the S. E. (and the ground gradually rises to the East, till it joins the distant hills) on a fine open space, cleared for the purpose : the New European barracks &c. are built in echelon. The site is excellent—commanding as it does the Town of Shoay-Gyeen, and Stockade ; and I cannot help remarking that it shows little judgment on the part of the Burmese to have built their stockade so low, while a fine commanding site lay close at hand—and which only required clearing—to the E. stretch out vast jungles bounded by fine bold and clearly defined hills. To the N. a low level plain with a jungle stretching out in the distance. There are (as where are there not in Burmah ?) some very beautiful walks and views in Shoay-Gyeen—one only I shall mention. It is to the S. E. the road in this direction (passing the Commissioner's house,) at first winds along under an avenue of trees, which at times break out into glades and vistas—with a few dilapidated Pagodas and Phoungyee houses on each side of it—as you gain an elevation the scene to the right is really beautiful—and I would almost at times fancy myself looking down on some wild scene in the Highlands of Scotland—steep banks descend at whose foot runs along the golden stream of the clear and sparkling Shoay Gyeen—while the eye wanders over the rich and luxuriant foliage of a dense jungle—of underwood and forest trees ; the whole bounded by purple or dark green hills, with jagged summits in some parts clothed in foliage and relieved against the deep blue sky—but oftener hid in mist or encircled with light fleecy clouds—It is a scene never to be forgotten. And it is thus

travel rewards; for one such scene repays for days, and weeks of privation, toil, and danger.

Tigers sometimes pay us a visit—one was shot lately and another came down and killed a bullock—and then made off, but though he was waited for and shot at on his return next evening, he escaped.

At present we have laying here.

A wing of H. M.'s 35th Regiment.

A wing of the 35th Grenadiers (N. I.) and who lately relieved the 18th N. I.

Part of a Company of Madras Arty. the B. 2nd Battalion.

I have given but a brief and concise description of Shoay-Gyeen—as I said—merely to serve as an introduction to more stirring matter."

20th February.—We quitted Shoay-Gyeen at day break with an addition to the elephants supplied us by the Commissariat at Rangoon. This animal had a small bell strung to its neck, the sound of which was deep toned and harmonious. It might be heard at a considerable distance, and produced a very pleasing effect among the woods. The utility of this ornament sufficiently accounts for its adoption. The bell serves to keep a party together which accident might otherwise separate in the interminable forests.

The country through which we passed was much embellished by a profusion of jungle trees, and, at the commencement of the march, by noble clumps of bamboos. It was, indeed, a noble forest; almost every variety of the finest timber the country produces stood interspersed, such as *Dalbergia*, *Melicoca trijuga*, *Pentaptera arjuana*, *P. glabra*, *Odina woderi*, *Acacia stipulata*, *Lagerstræmia regina*, *Inga xylocarpa*, &c. The two last were of frequent occurrence and appeared to me to be the only timber felled here for the Shoay-Gyeen market. A good garnishing of *Careya arborea* and *Melanorrhæa usitata* marked the quality of the ground, and *Strichnos nuxvomica* with a short, crooked, thick trunk, irregularly branched, and overloaded with fruits, added to the picturesque effect. The level ground between the Sit-tang river and a low ridge of hills was covered with bamboos. *Acacia stipulata* and *Lagerstræmia regina* also grow luxuriantly there, though very little of the underwood had been cleared by the fire.

The ridge of hills mentioned above is said to be metalliferous. On a hasty examination, I found it principally composed of grey iron stone resembling lava, in the spaces between the granite, great blocks of which appeared on them.

Before coming to Bawkatah village, the path lay for three hours through high grass jungle, which, having recently been visited by a herd of Elephants—the prints of whose feet were very perceptible—rendered travelling extremely unpleasant and even dangerous.

We came to Bawkatah at 1 p. m. It is a small wretched looking village. The inhabitants complained sadly of the mischief done to their crops by wild hogs (*Sus indicus*), a great part of which was completely destroyed. The villagers were miserably clad, and exhibited other signs of extreme poverty. The site on which the village is built, on a choung of the same name, being lately cleared, none of the houses were quite finished. Nothing can be more different from Samphai than the appearance of the country thus far. Not in natural features, for it enjoys the advantages of climate and soil perhaps even in higher degree, if not equal—but the misery and poverty of the people, the oppression under which they had been bowed down under the former Government, and the almost total neglect of cultivation, are beyond description. Nature must be called into beneficial exercise by the industry of man, and the population of this country is unable and disinclined to avail itself of the natural advantages it possesses. We saw nothing but hamlets, very few inhabitants, and scarcely any horned cattle after we left Shoay Gyeen.

1st. March.—Crossed the Bawkatah choung which was about twenty yards in breadth; its banks were most abundantly ornamented with trees of *Salix*, and several cucurbitaceous plants were also found sown.

During the journey, we met a number of bullocks proceeding to Shoay-Gyeen laden with merchandise, and near to them a still greater number of cattle belonging to Shan Merchants, grazing in the field. These people repair annually, in the dry season to our territory, bringing with them stick lac, bee's wax, various drugs, gums, raw silk, lacquered ware, ready made clothes, consisting of Chinese pantaloons and jackets, the latter being stuffed with cotton and varnished jet black; onions, jaggree in cakes, ponies, &c. &c. stick lac is, however, the principal article. The returns are book muslin, dry fish, ngapee, salt, &c.

The country we traversed to-day was partly through forests of a mixed kind, and paddy fields. The former comprised *Acacia Sirissu*, growing gregariously, *Lagerstræmia regina*, *Grewia spectabilis*, *G. Hoo-kooi*, *G. Floribunda*, *Rydia Calycina*, *Dillenia angusta*, and *D. Sonchifolia*. The latter were interspersed by scattered villages, delightfully situated. We came to Kwai-tai-lan's Karvon village, as the sun was passing

the meridian, and took up our quarters for the night in a small *sayat*. The Panloun mountains stood before us, presenting one of the most magnificent sights. There arose a perpendicular cliff in all the majesty and sublimity of its desolation; there another sprang forward as in the very act of losing its balance, and about to precipitate itself upon the vale below; while a thousand other objects, grotesquely and fantastically arranged, and all shaded in the sky-bound perspective by the blue ridge-like brow far beyond Panloun, constituted a kind of chaotic space where nature seemed to have indulged in her wildest caprices.

2nd March.—At this place scanty supplies were obtained, scarcely sufficient for the day. There was fetid water in a neighboring well, and boughs hardly enough for our elephants, and we were therefore glad to leave Kwai-ta-léen, and entered an extensive plain of which the vegetation was peculiarly pleasing. Fine grass of various kinds, with *Mimosa* of different species peeping their heads through them, and bushes of *Acacia*, *Bauhinia*, *Combretum*, and *Cactus*, clothe the soil which is formed of slate clay. I traversed the district in a cheerful frame of mind, and Koon-choung-wah village—situated on the Sit-tang river—received us hospitably. As we entered, there were a bevy of women and girls “in the garb of Eve” and in open day, tumbling and splashing in the water, enjoying themselves like ducks in a puddle. They were in no degree disconcerted, and joked in perfect innocence and unconsciousness of perpetrating an impropriety. The passers by appeared to take it as a matter of course.

Many of the gardens about Koon-choung-wah village, exhibited proofs of industry, intelligence, and consequently success, far beyond what might have been expected from the almost total previous neglect, and I will add, invaluable appendage to a poor man's house. I was informed that it was long before a due sense of its importance could be instilled: the example of a few better informed on this subject, but above all the frequent landing of Europeans at this place, on their way to Toung-hoo, has opened the eyes of all the villagers to the advantages of a garden, which has now begun for the most part to abound in *Tamarindus indica*, *Carica papaya*, *Mangifera indica*, *Artocarpus integrifolius*, Plantains, *Annonas sativus*, *Solanum melongena*, *S. lycopersica*, *Raphanus sativus*, *Lagenaria pipo*, *L. vulgaris*, *Trichosanthes anguina*, *Momordica charantia*, *Luffa pentandra*, *L. decandra*, *Allium sativum*, *A. cepa*, *Sinapis albotoma*, *Phaseolus mungo*, *Zea mays*, *Ocimum* and *Hibiscus sabdariffa*. I never saw the red sour calyx of *Hibiscus* so fine any where; it makes an excellent jelly, much resem-

bling, and I think as good as our English currant. Its native name is *Chinboug*—it may be also used for tarts.

Besides the above, I was very much gratified to see the dark leaves of *Punica granatum* with its deep vermillion blossoms; intertwined with its fairer neighbors, the *Citrus aurantium* and *C. bergamia* with rich ambrosial blossoms which filled the atmosphere with a luxury of odour. Behind them rose the *Inga bigemina* a leguminous plant—affording a thick beautiful shade, over which peeped the slender and graceful *Cassia florida* with branches terminating in a large panicle of deep yellow blossoms, making altogether a charming picture.

Since we left Pegu city to this day, the following formation of Forests was noted by me.

1st. From Phrawgyee village to Ma-ou-dan, Yindike, an undescribed species of *Dalbergia*, appeared to be the most prevalent; it also inhabited—almost to the exclusion of other trees—the tracts from Kyouktalone to Dike-ou. It was, however, seldom observed to attain a very large size, and generally exhibited a girth of from two to three feet in circumference. It yields timber of a black color, of extreme closeness of grain and density of structure, with a specific gravity that it will not float, and might be tried for gun-carriages or for mechanical purposes, where strength is required and great friction to be resisted.

2nd. The tree which yields the wood oil—*Dipterocarpus turbinatus*—showed a second forest type from Ma-ou-dan to the Bawnee forests. The timber affords good scantling for house building, but the Burmese prefer it usually to make up their canoes. It may be very well used for house posts if carefully preserved from moisture.

3rd. Iron wood—*Inga xylocarpa*—exceeded in number its associates from Shoay-Gyeen town to Bawkatab, with a girth of from fifteen to eighteen inches in diameter. It is the *Pyin-Kadoe* of the Burmese. It was in great demand at Shoay-Gyeen when I was last there. *Inga* is impervious to white ants, and, from what was said by Dr. McClelland, appears well adapted for spars for naval purposes, if not too heavy.

4th. From Kwai-ta-leen to Koon-choung-wah village, *Acacia Sirissa* was the most common. It is easily distinguished from its forest companions on account of its clean trunk of four to eight feet round, being of straight and lengthy growth, and would furnish valuable timber for house posts or other economical purposes. It produces timber of a dark color, and very hard. It is remarkably char

acteristic of a peculiar soil. This tree is sure to be found wherever the land is low, and liable to inundation.

3rd March.—Having proceeded in a N. W. direction for fifteen miles, we halted at Tha-nat-pin-zaik village. A small teak forest occurred in our route, containing about fifty full sized and a great number of young trees, growing along with *Dillenia augusta*, *D. scabra*, *Inga xylocarpa*, *Pentaptera arjuana*, *P. glabra*, *Gmelina arborea*, *Careya arborea*, *Terminalia chebula*, *Elæodendron integrifolia*, *Strychnos nuxvomica*, *Lagerstræmia regina*, *Walsura piscidia*, *Barringtonia acutangula*, *Bombax pentandra*, *Conocarpus robustus*, *Pterospermum aceroides*, *P. subacerifolium*, *Microlæna spectabilis*, *Odina wodier*, *Antidesma paniculata*, two species of *Bignonia* and *Dalbergia*.

But, whether from the facilities afforded for the removal of teak, it is of a small size, whilst the foregoing trees, except *Dalbergia* and *Strychnos*, all large timber, rivalling the teak itself in magnitude, and far outnumbering it in quantity.

A few miles before we reached Tha-nat-pin-zaik, we came to a border of low land between high and low water marks. I was informed that this spot, during the rains, is covered with several feet of water. The humid effects of these inundations no doubt remain long after the waters have subsided, and the exhalations—from the power of the vertical sun—generate diseases whose effects are exhibited in the pale yellow complexions of the inhabitants. Behind this spot, at the distance of above five hundred yards, there are low, level, swampy savannahs, formed by the rains, which are prolonged in the direction of the coast, with a depth more or less considerable according to the distance of the hills, and covered with wild sugarcane, *Arums*, *Pontederias*, *Pistia stratifolia*, and other aquatic plants. The uncultivated *Arums*, and the succulent stems of, a variety of the last named are among the most frequent vegetables to be met with in our bazars, which, in other Asiatic countries, would hardly be deemed esculent at all.

The stagnant waters in these swamps, unshielded from the action of the sun by the forest, render them still more deleterious by being filled with trunks, leaves, branches of decaying trees and all kinds of putrid vegetation, and becoming laboratories of miasma, and generate on every side the seeds of disease.

4th March.—We came to Joebin village at 10 A. M. after having met on our way a small forest of teak trees with abundance of seedlings growing on beds of sand resting on laterite. Throughout this day's journey the country continued to improve, and although

much overrun with jungle, offered ample evidence of fertility. Joebin village is fortified on all sides by bamboo spikes, owing to frequent attacks of dacoits in 1854. It is gracefully built on a lofty mound which shows it to advantage, and has a few houses situated in gardens and imbedded in groves of trees of *Mangifera indica*, *Artocarpus integrifolius*, *Tamarindus indica*, *Carica papaya*, and Plantains in its environs, contributed not a little to its pretty appearance.

Our Goung-gwai, on being asked to procure us some baskets of rice, assured me that he could not do so, as the villagers always depended on the Kareens of the neighboring hills for the article. This striking circumstance is of much importance, as it proves that in hilly regions naturally of an inferior fertility, and some of which are even absolutely sterile, or placed under the influence of a climate little favorable to the vegetation of *Cerealia*, human labor had so far succeeded in mitigating the rigor of it, and that the soil naturally ungrateful and meagrely endowed, had become by industry amazingly improved by the perseverance of the hill tribes. The fact is, the bounties of nature are only of real utility to man (as in the case above cited) in proportion as he renders them his own by exertion and ingenuity.

The cultivation alluded to is of the rudest kind. A spot is cleared by felling the trees indiscriminately at the commencement of the dry season, and after exposing them to the sun till the approach of the succeeding rains, they are conflagrated. The ashes produced go to enrich the soil. The Kareens follow rigorously this practice of their forefathers, and resist with characteristic obstinacy all attempt at innovation. They are too poor or ignorant to look out either for new methods of cultivation or new articles of commerce. They are contented with the means of existence, but the occasional labor which they will go through—more particularly in bearing heavy burdens across the mountains, is astonishing.

5th March.—Examined the rapids in the Koon choung. The water was bounding onwards with resistless speed, and as it dashed against the rocky obstructions—being lashed into foam and gleaming with silvery brightness wherever touched by the sun's rays. These falls may have been formed by earthquake motion; the convulsion must have been terrible, since they are vast rocks apparently torn from the mountain, and strewed on the bed of the stream, the trophies, as it were, of its victory.

I have ventured to express the above opinion because, in reading over the narratives of earthquakes at large, we are constantly assured of mountains being removed from one place to another—of their sides being detached and rolled, or conveyed into the streams, vast, angular, and without order;—of the heads of the largest trees being bent downwards;—of valleys being obliterated; of the course of the rivers being altered, springs and fountains sprouting up, fissures and chasms of vast depth and extent being formed with smoke and flame issuing from them, and of lakes formed where none previously existed.

To open a passage to float the timber from the higher forests of this district, it would be advisable to apply the explosive force of gun-powder to rend these rocky boulders. I have not the least doubt but that they can be overcome by a small outlay. Why should it not? I recollect reading of immense excavations having been made upon the great canal in Sweden. In France also, a tunnel of considerable length was made. Indeed, in all of these works, in road making, and in many other undertakings intimately connected with the prosperity of commerce, the extension of the arts, or domestic comforts and national importance, it is most evident that, but for the simple process of applying the extensive force of gun-powder, we must have been deprived of innumerable advantages and accommodations.

6th March.—We proceeded to examine the Koon forests. A short distance from Joebin village we passed over a low ground of light and sandy soil, thinly dotted with teak, and an occasional tree of *Dipterocarpus turbinatus*. This spot was evidently cultivated some years back, but now it has reverted to its original type—jungle; and, according to the affirmation of the Goung-gwai, contains no water during the dry season, but in the rains it fills and finds an exit into the Koon choung.

A range of hills commenced half a mile from Joebin village, exhibiting all the appearance of original character. Some hoary points were seen to shoot boldly; one might fancy, looking down, to see that all went right among the junior branches. This range, at first low, of a sandy kind of slate clay—increases gradually from eight to eleven hundred feet; the higher hills being composed of the ordinary soft slaty rock. In the low range, I remarked teak to be the prevailing tree, a greater portion of it was from six to eight feet in circumference, with its long cylindrical trunk of from fifty to one hundred feet in height to the branches. From its straight growth, and the number of fine young trees and self-sown seedlings, I consider this is the most

favorable locality for forming a nursery, or establishing teak plantations. A large stock of bamboos—exceeding fifty feet in height—also occupied by far the greatest space, while the density of their shade precluded, in a great measure, the vigorous growth, if not extermination, of young trees and seedlings. This is a question of great importance with reference to prospective nursing operations.

It is a remarkable circumstance that, whenever I found a great number of fine, vigorous, and healthy full-grown teak trees surrounded with bamboos, I saw very few seedlings near them, and these on examination turned out to be of very miserable growth, their process having apparently been vitiated. Thus, we have a strong proof of the inaptitude of teak to propagate itself when deprived of the access of the sun, and the impingement of the rain and dew. But, on the other hand, where these bamboos had been cleared, in other localities, I found teak trees shedding their representatives around them, of varying height, and showing by their presence that they have fulfilled the full extent of their obligations towards propagation. I am of opinion, that the only rational explanation of seeds refusing to germinate must be attributed, as I have said before, to the crowded company of stifling underwood and bamboos, as well as the deprivation of the genial warmth of the sun and the baptismal of the rain and dew.

From the facts above stated, and my experience of the last year, it is obvious that in the growth and production of teak plants, unnatural and diseased actions take place from the presence of shade. Experiments have shown, that the trunk and foliage of plants emit oxygen when under the influence of light, and that, when removed to a dark situation, carbonic acid is evolved; and it is therefore apparent that a species of respiration is carried on in vegetables. Of the evils attending crowded jails and populous cities much has been written and said, and to judge of the baneful effects on the human constitution, I need only compare the healthy peasant of a village with the sickly inmates of a dungeon or of emaciated citizens, and may it not be so with *Tectona grandis*?

The other trees that kept company with the teak of these forests were 1, *Dalbergia*; 2, *Inga xylocarpa*; 3, *Melicoca trijuga*; 4, *Pentaptera arjuana*; 5, *P. glabra*; 6, *Walsura piscidia*, &c. &c. The leaves of numbers one, two, and three were thinner on the branches, and their tints less brilliant, and though the green leaves of number six still gleamed here and there; they were fast dropping from the boughs,

while those of numbers four and five were dry and sapless, crackling in the hand like parchment.

As we approached the summit of the ridge on which we had been gradually ascending, the ends of two vales, on both sides of the road, trended to us. Their deep ravines were clothed with the most luxuriant green, and formed a delightful contrast with the surrounding dry aspect.

Here I observed *Dalbergia*, which bore indications of nascent foliage, and *Dipterocarpus turbinatus* also, with incipient leaves all growing with wild plantains and *Calamus arborescens* with immense leaves. A few minutes before the tops were reached, I had a noble prospect to the N. E., embracing on both sides of the Koon cheung an almost uninterrupted forest. I feasted on this fine view, over which the warm tints, of the blazing sun cast a magical splendor of unspeakable effect. Indeed, any attempt to give a graphic description would degrade it, like those painters who bedaub, with new coloring, the magnificent pictures of Michael Angelo; in attempting to revive, they disfigure them, and the masterly touches of the Florentine disappear under the false glare of their pencils.

After gaining the summit of the hill, we pursued a S. W. direction, when we came to a rivulet—one of the tributaries of the Koon—a clear and cold water issuing from the rock and partook our breakfast on a green sward close by. We followed the serpentine course of this rivulet for a mile, and cleared an encamping place on an open space—evidently a deserted toungya—covered with *Urena lobata* and *Triumfetta lobata*, while the jungles were tangled with *Jasminum syringefolium* and *Clitoria ternatea*.

7th March.—Encamped.

8th March.—The soil over which we passed in our march to Min-lar village was rich and fertile. All around us seemed one wide garden strewed with groves of trees, fields, flocks of buffaloes, and hamlets, teeming with abundance. I noticed that almost all the villages were with industrious inhabitants, busily engaged in the labors of their harvest home. One, apparently a prosperous and wealthy man, who was garbed like a Bengallee, was looking over the laborers, giving them directions, and imparting his commands. An old man came up and discoursed with me at great length, and with most voluble loquacity—of the tyranny he had suffered under the Burmese Government.

9th March.—I was sorry to hear the demise of the old Phoungyee with whom I cultivated a friendship last year, and who rendered us

a great deal of assistance. His remains were deposited in a coffin and laid on a sort of a table richly ornamented with flowers made of paper and velvet. It was kept exposed in the verandah of the Kyoung to afford an opportunity to the people of the surrounding villages to resort to the shrine to pay their homage. It is considered by the Burmese quite a merit to be a graceful weeper on such occasions. One of our Peons undertook to mourn for the deceased Phoungyee, for a trifling reward, and acquitted himself with much credit—more to the spirit than the best tragic actor. He mimicked every exterior indication of grief and the most heartfelt wailing, till the tears trickled in torrents down his cheeks.

The Burmese ceremony of embalming their defunct priests reminds me of the *post mortem* process pursued by the ancient Egyptians of opening the dead body, taking out the intestines, pickling it with salt-petre, and filling the place with odoriferous and desiccative drugs and spices to prevent its putrifying. It appears to have been a metaphysical notion inculcated by their religion, that the soul continued with the body. There naturally followed an affectionate desire to do every thing that living creatures can suppose acceptable, and it was essential to this gratification that the body should be preserved in the most perfect manner possible. This is not, however, the case with the Burmese; they preserve the remains of their priests to give them time to make preparations for blowing them up. I recollect being a spectator, some years ago, whilst in Maulmain, to the interesting and most characteristic ceremony of blowing up a Phoungyee or the *Phoungyee byan*. The coffin, containing the body, was placed on a four wheeled car, ornamented with paper and leaf gold, and painted with various grotesque figures. The car had two cables opposite to each other, and the dovotees pulled against each other; this contest lasted for hours, till the superior strength of the one or the other put an end to it, and the defeated were seen to tumble head over heels. The car was then taken to a temporary fabric built expressly for the purpose called *meeloung tike*, where it was burnt by rockets fastened to carriages, which slid on to the coffin and set it on a blaze.

10th March.—We proceeded on the road to Letpanquin across the rich plains which want nothing but an industrious population to fill the mind with images of prosperity, tranquillity, and happiness. A range of hills, called the Kimmadoe, rises abruptly from the said plains, and stands like a huge buttress. To one who has gazed so long over the monotonous lowland and forest, and looked

oftentimes wistfully at these distant hills, it is a matter of indescribable joy when his wishes have been at length accomplished.

We ascended these eminences on a delightful morning, and how pleasant are such early starts often even before the appearance of the Aurora ! The mountain breeze was truly invigorating, and I watched the soft masses of white vapour ascending higher up the hills till the whole scene lay bathed in the golden light, and bright with the freshness of the early morn.

The road after leaving the plains, was steep, and the ascents, though short, were singularly steep, one of them actually subtending an angle of 46° , and as we climbed by degrees into loftier regions, I felt the temperature becoming more agreeable and refreshing, but the sun was still exceedingly powerful and produced a good deal of thirst, which I was glad to slake at a diminutive spring that I fell in with two-thirds of the way up. I rested a short time beneath the shade of the wood oil trees, whilst the peons of the establishment partook of the grateful element, and then dismounting from my pony up a precipitous steep, we shortly afterwards gained the crest of the ridge which must have been between eight or nine hundred feet in height. The vast extent and prospect that was spread around us was exceedingly charming. The woods which covered with great luxuriance the lower range from the base to the summit, constituted the principal beauty.

The trees most abundant were *Inga xylocarpa*, *Melicoca trijuga*, *Diospyros melanoxylon*, *Pentaptera arjuana*, *P. glabra*, *Elæodendron integrifolia* and *Dipterocarpus turbinatus* of gigantic size.

After six miles scrambling we slid down to Koon-myong choung, where we encamped amidst the bamboo jungle. This bamboo is the *Bambusa gigantea* of Botanists, and the *wahboe* of the Burmese. I found it growing here luxuriantly, so much so that even Capt. Basil Hall would have envied it. The stem was generally two feet in circumference, and from fifty to eighty feet in height, divided into joints or articulations of two feet between each. The green leaves waving in the wind, gave the trees elegantly feathered appearances. The natives are dependent on this useful plant wherever it is found, and resort to it as occasion requires ; and in the works it produces, they shew the advantage they have derived from it. Its uses are numerous, various, and beneficial, so that it is impossible to conceive how a poor Burman, Kareen, Yaibane or Chin could now dispense with it. I have seen it employed in the construction of vessels for carrying

water, to hold rice, *ngapes*, salt, &c. Houses have been built with it without any auxiliary aid; if entire it has been used as posts, and when split up—which is accomplished with the greatest ease from its extreme flexibility and divisibility—it has served for floors, rafters, and roofing for houses.

11th March.—I found about the Koon-myong stream numerous teak seedlings in company with their seniors; the latter appeared much scattered and shewed a sufficient height and size to furnish a working log of fifty feet in length, from which planks of two feet in breadth can be cut all the length throughout.

The road we pursued to-day was uncheered by the preschce of hamlets. At the end of five miles, however, the first sight of a Kareen habitation met our view, and here we encamped by the side of a stream, which formed a little rivulet, that rolled onwards with a gentle ripple as it washed the stones impeding its progress, or, flowing beneath some huge rock, settled into deep pools where it was hushed in the silence of repose.

Being excessively tired and worn out with much exertion yesterday, I laid down on a charpoy and was soon in a deep sleep; but towards two in the evening, I was awakened by the peon when I suffered from racking pains in my arms and legs, but attributing them to that day's fatigue, I bathed as usual, on which a smart shivering fit ensued, followed by fever and a severe pain in the head, compelling me to have recourse to an emetic, and by abstaining totally from food, I managed to bear up against the disease, and when I rose in the morning, to my surprise I felt perfectly well and congratulated myself on the recovery. I have related this in order to show that a person travelling through the forests should never be without this valuable medicine.

12th March.—Some miles after leaving our last encamping ground the country became more open, and about 9 A. M. I saw the Koon chong onward, winding in a serpentine manner. The ride along its bank was exceedingly pleasant, rendered still more so by the level natural roads; and, as we advanced towards Chin-lay village, we came upon a flat country, known by the name of Letpanquin, and where herds of fat buffaloes were quietly browsing upon its pastures, or laying down under the shady trees of *Ficus cordifolia*. This plain is remarkable for amenity of soil, richness of produce, and beauty of appearance, on account of being moistened by choungs, rivalets, dews, and frequent showers of rain, stimulated by an ardent sun. I met here a most beautiful *Irosera indica* and *Bignonia stipulata* with long

twisted pods, a beautiful yellow flowered *Allamanda*, and many fine species of *Loranthus*.

I have been informed, that whatever is thrown into the prolific bosom of Letpanquin plain, grows to a wonderful degree of perfection. Its staple productions are emphatically rice and maize. The former especially has been produced of a superlative quality, and, in such abundance that, as is asserted by the Burmese, the crops have often yielded a hundred fold. Cotton is also grown, and on examining it I found the texture very fine and silky, but the staple was short. The species referred to is the *Gossypium herbaceum*, or annual herbaceous kind, with a seed from which the wool is separated with difficulty. Universal as the use of tobacco is among these people, there is very little of it cultivated, they depending on their Kareen neighbors for their supplies. Of fruits and vegetables, the following may be enumerated as produced here. *Musa paradisiaca*, *Artocarpus integrifolius*, *Tamarindus indica*, *Mangifera indica*, *Zizyphus jujuba*, *Capsicum*, *Momordica*, *Charantia*, *Cucumis sativus*, *Solanum melongena*, *S. lycopersica*, *Phyllanthus embelia*, *Psidium pomiferum*, *Colocasia antiquorum*, *Batatus edulis*, *Lablab vulgare*, *Lagenaria vulgaris*, *Luffa pentandra*, *Canavalia gladiata*, *Cicer arietinum* &c, &c.

Salubrity of climate is decidedly the most interesting feature in the character of this place. I was informed that it has experienced very little disease except of a febrile character, so that as great a degree of longevity is attained here, perhaps, as in any other portion of the habitable world. Persons almost approaching to dotage, are to be encountered occasionally, whose extraordinary age is only to be inferred from their recollection of certain notable events which have taken place in times far remote.

Letpan of the Burmese, or *Bombax* of Botanists is found in so much abundance here as to bestow its name to the place itself. It presents some striking geological phenomena. With the few and imperfect ideas which I at present possess, conjecture as to the mode in which the plain has been formed is altogether vain, yet though philosophers demand facts as the basis of their theory by which to account for these appearances. I may attribute them to a convulsion of nature. This opinion, which I have ventured to express, is not, perhaps, ill-founded, particularly if we suppose that the mountain was detached from the higher regions of the chain and covered the ravines below; a conjecture which should seem to derive countenance from the steepness of the parts opposite to it. That

this part of the country has been absolutely exempted from earthquakes, seems also disproved by the numerous boulders of rocks scattered over this district, and bearing all the marks of having been thus overthrown. It must be confessed, however, that the want of accurate and detailed examination on my part of the whole of the mountain and its neighborhood, renders any speculation on this subject necessarily extremely vague and unsatisfactory.

After passing Chinlay, a village of eight houses, in our way, we came to a low ridge of hills lying near Tagoondine choung (where there is a Kyoung) a branch of the Koon, covered profusely with undersized teak, and composed almost entirely of its own kind. In some parts, I observed several patches of thirty or forty young teak without any intermixture of other trees, although the latter, in other forests, seemed to have acquired the same contingencies of soil and circumstance, and the same peculiarities as teak.

The passes of Letpanquin district into Tharawadi must be easy, and not, as affirmed by some of the Natives, of extreme and peculiar difficulty. From the examination of the structure of the hills, I consider that the roads must generally be carried over unbroken ridges, and, taking also into consideration the frequent communications between the two districts, and the exchange of their respective commodities (the latter conveyed on the backs of buffaloes), the obstruction could not be after all so formidable as it has been represented to me.

We came into camp about 11 A. M. We purchased to-day a great quantity of dry meat of the wild ox—*Bos Sondaicus*—for our peons. The Burmese find no difficulty in curing it by slicing it thin, and spreading or suspending it in the sun; or, if in haste, it is slightly barbecued by placing it on a scaffold over a fire. This is done without salt, and yet it very rarely putrifies. The same method is resorted to when the weather is too damp or cloudy for the meat to dry in the open air. Here the extraordinary purity of the atmosphere of this place is remarkably exemplified. During the curing operation, they beat or knead the slices with their feet and hands, which they contend contributes to their preservation.

13th march.—At day break we left Letpanquin. It was a fine morning, and the day was delightful; a few fleecy clouds flecked the blue sky, adding new charms to the rich landscape by the sudden alternations of light and shade which they caused as they floated gracefully across the disc of the sun. In the course of a couple of hours

after we had left our encamping ground, we began to enter a vast primitive forest which the teak—*Tectona grandis*—appeared to shun. This forest was composed chiefly of bamboos, but the following trees were interspersed. *Pentaptera arjuana*, *P. glabra*, *Melicoca trijuga*, *Connarus speciosa*, *Grewia spectabilis*, *G. Hookerii*, *Elæodendron integrifolia*, *Inga zylocarpa*, *Cedrela toona*, *Odina Wodier*, *Dalbergia*, *Careya arborea*, *D. llenia augusta*, *D. scabra*, *D. speciosa*, *Diospyros melanoxylon*, *Lagerstræmia regina*, *Gmelina arborea*, and *Walsura piscidia*. The three last named trees were clothed in the most beautiful foliage. *Gordonia floribunda* and *G. integrifolia* were of frequent occurrence, and are known to the Burmese as *thitya* on account of the itching property of the bark when brought into contact with the skin. The timber may be well tried for gun carriages, its characteristic being compactness of grain. After having accomplished in all a journey of ten miles, we pitched our tents on the right bank of Kayoo choung.

14th March.—We went to rest cheerfully last night, when distant thunder awakened us at the ominous hour of midnight, and instead of the bright firmament, glittering with the lustre of numberless stars, which had, as it were, lighted us to bed, we found ourselves enveloped in the thickest darkness. The occasional flashes of lightning revealed the agitation of the sky, and the morose countenance of "Jupiter the father of the gods," and also illuminated the margins of the gloomy clouds, when, all at once, the rains poured down and assailed us so vehemently, that the tents could hardly ward it off. When we got up in the morning, the sun arose in unsullied brightness, darting his diverging rays through the rising vapor. We were obliged to delay our march till 10 A. M. the tents being saturated with water as to be too heavy for the elephants to carry. Nothing can be more beautiful than this day as we started—no shadow to balance the glare of light, no contrast to oppose it—all was illumination, and the late heavy rain having washed the trees, imparted a freshness to their leaves which was truly delightful to behold.

After travelling about ten miles, we came to a broad choung called Phyw, running between the mountains. Its clear and limpid stream reflected the woods rising from its banks, and added to the charm of the surrounding scenery. We descended a steep to enter it, and found that it was not above two feet depth of water, though I perceived by the marks on its banks that it was liable to sudden freshes. On ascending a still more perpendicular pass on the opposite bank,

we came to Phyeu-gyee-sakan. This place, like many others on the route, is neither village nor hamlet, but a simple encamping ground. We had already several of these since we left Minlan village, and we would hear a dozen others spoken of, leading the stranger to imagine that the route was lined with flourishing villages. The guide would tell us to hasten and that we must reach Kyawdong before the hour of breakfast. We spur on, perhaps with redoubled vigor, in hopes of resting at a village, but lo! upon arriving, we find only a mere watering place. Thus every point along the highways of the wilderness used as a camping site, has received a distinctive name well known to foresters.

The vale of Phyeu bore indications of the late violence; the long reeds that had sprung up in it wherever they could find sufficient nurture, being levelled with the ground, and partially covered with a vicious deposit of red mould brought down from the hills. Teak was observed to-day in company with other trees met with yesterday, the former probably forming fifty per cent of the latter.

The sun had long disappeared beneath the horizon without bringing any tidings of the elephants and our baggage, and as we were preparing "for the worst" we spied a well dressed Burman approaching, who excited at first considerable curiosity. His costume, and peculiarity of deportment, soon showed him to be a Goung. He saluted us with demonstrations of joy, nor were we less delighted at meeting with him; he was desirous of supplying us with some provisions, which, by the bye, were welcome enough, for we were destitute of them. Our kind visitor soon retired to his hamlet close by, and, with several of his Kareens, afterwards brought us a quantity of rice and *Koung-nyeen*, the last, better known as *Oryza mutica* to Botanists, is thrust by the Kareens, into joints of bamboos (for the purpose of imparting a sweet delicate flavour) and roasted on the fire, and when cooked, it is very wholesome and substantial, and with milk and sugar, would afford a delicious diet. Several handfulls of *Capsicum minimum* were offered to us. These people make an extravagant use of this Cayenne pepper; they virtually breakfast and dine upon it. It enters into every dish at every meal, and often so predominates as entirely to conceal the character of the viands. It is likewise roasted and ground with *ngapes* into a sauce or used as a salad, in a green state, and served up in different ways.

Having got the rough dinner before us (composed of boiled rice and minced fowl roasted on the fire) Dr. Brandis and myself were at a

loss what to do with it, as knives and forks there were none, and instead of plates we had a long plaintain leaf on which the repast was placed. We looked at it for a moment, but it was no use sticking at trifles, so boldly seizing the end of a skewer, on which the lumps of meat had been spitted, we commenced work, we got on admirably well, and not only enjoyed our meal, but at its termination pronounced an encomium on Karen cookery. I may here state that I have always, in all my travels, experienced a great deal of hospitality from these poor children of the forests. Whatever sins these ignorant people may have to answer for, I must accord to them at least two glowing virtues—gratitude and hospitality. I have suffered like others, however, from one very disagreeable custom which prevails among them. Instead of fixing a price for the services they bestow, they are apt to answer “whatever you please” expecting, of course, that the liberal *thakin* will give more than their consciences would permit them to exact.

About eight o'clock in the night we were glad to see our camp come in. As soon as our tents were pitched and every thing arranged, the bustle of kindling fires and preparing dinner was commenced by our hungry peons; their appetites were no doubt in exquisite condition to relish a late meal. The fires had scarcely been kindled when the fumes of boiling salt fish and *ngapee* pervaded the surrounding atmosphere; which all were observed to huddle about, anxiously watching their cookerries, and regaling their senses in anticipation upon the savoury odours which issued from them. As to the manner they gormandized all that was before them, I want words to express.

15th March.—We quitted Phyw-gyee-sakan at day break, and marched to Kyawdong myoung where our encampment was to be formed on a spot everlooking and close to Phyw choung, whose bed, for the most part, was the only road we had, and was rocky. The scenery throughout was analagous to the preceeding, except that the hills were of a more lofty and wilder description and being almost covered with teak. The over-hanging rocks, which bore on their surface such a high state of polish, that they had the appearance of being perfectly wet; but it arises, I conjecture, from the constant trituration of the sand washed upon them during the rainy season. From the sharpness of their angles, and the darkness of their hue, I concluded they were composed of an extremely hard stone, but a few

blows from my stick easily separated a portion, the fractures assuming regular slopes of a slaty substance.

I had occasion to-day to become acquainted with a species of forest tenant whose visits generally produced impressions that were any thing but agreeable. I allude to a small insect, *Tipulidæ*, generally known as the gad-fly. It not only attacks the face and hands, but even contrives to insinuate itself into those parts which one is most careful to guard against intrusion. It fastens itself and luxuriates, until completely satisfied. Its bite is so venomous as to give the face, neck, and hands, or any other part of the person upon which its affectionate caresses have been bestowed, the appearance of a pustulated varioloid. The gad-fly is, in fact, a much more annoying insect than the mosquito (*Culicidæ*), and also much more frequently met with in the forests, attacking man and beast.

16th March.—Our tents were pitched on a tongue of land round which the Phyw silently flowed, and the stream, though not deep, yet indulged in a sinuous course. In some places large boulders encumbered its bed, which I fancy must be under water during the season of the periodical rains.

17th March.—The direct road to Minlan village being impracticable for the elephants on account of the steepness of the hills, we were compelled to take a more circuitous road, which, as it has been said, will eventually bring us to a low ridge, where the hills are more undulating and less precipitous. Accordingly, a short distance from our starting post, we diverged to the left, route almost due east; and though we expected to have had a long march, we little imagined it would even have been the extent it really proved to be. Eight *dines* was the distance marked by the Kareens, and as their *dine* is a measure varying from two to upwards of three of our miles, we thought we would put the happy medium, and calculated at two and half miles, its most general approximation. At the tenth English mile we espied our Burmese clerk, who had come from Minlan village to meet us, and as the sun was extremely warm, we congratulated ourselves on the apparently speedy termination of our journey, and pronounced it to be not so long a march after all. As we approached him he undeceived us by saying, that the "promised land" was fifteen miles further on, a piece of intelligence we received with great dismay, and but little courtesy.

Shortly after this interview, we ascended a ridge clothed with majestic trees of *Pentaptera glabra*, *P. arjuana*, *Gmelina arborea*, *Garcinia cowa*, *Melicoca trijuga* &c., growing with bamboos, the latter

arching gloriously over our weary heads and seemed to mock the sun, which threatened us with a tremendous grilling. Before we reached a low chain of hills, there were two roads; our guides unfortunately conducted us by the wrong one, because the shorter. Several deep nullahs obstructed our progress on this; but we crossed them without accident, though not without considerable labour, and the additional harassment both to men and elephants, is to be regretted, as it might have been so easily avoided. A slight descent brought us to Phyew chonng, which we crossed; its waters were discoloured by a red earthy matter washed from the hills, by the late rain, and presenting a strong contrast to the almost crystal purity it possessed in the upper part of the forest; and, after skirting a small belt of grass jungle, we, in the course of half an hour, came to Minlan village. It may be mentioned here, that at the commencement of the march, we passed through a fine teak forest, which I should estimate to have contained about three hundred full sized trees and eight hundred Yats or logs, measuring on an average four feet six inches in girth. About sixty of the former were Nathuts, or trees that have died by natural death, which were stretching forth their deformed limbs towards heaven, as if to pray that the hand of civilised man might at length relieve them.

Besides these productions, honey and bees' wax are said by the Kareens to be very considerable. This is proved by one of our guides who during this day, was constantly employed in splitting up the trunks of trees, in some of which I noticed a fissure in the middle of them extending nearly throughout, and containing honey and wax.

18th March.—Encamped.

19th March.—Ere the sun had risen on a bright clear morning we left Minlan village, and passed over a firm natural road, chiefly composed of hard clay, with occasional patches of lighter soil, which continued to be raised above the adjacent lands, in some parts higher than in others. We soon found that the rich cultivation only extended its influence in the immediate neighbourhood of Minlan village; for, as we advanced, forests of middling sized trees, commonly from twenty to thirty feet high, claimed the tracts on either side of the road for their own. The most frequent of these were the *Dipterocarpus tubinatus*, *Careya arborea*, *Odina Wodier*, and *Antidesma paniculata*.

In our way, a fine promising teak forest, composed principally of undersized trees, was examined. This is one of the Banlong forests, which

extend about four miles along the Koon choung, and from their being formerly thought to be inexhaustible, the wood cutters had got, under the Burmese Government, into the habit of cutting down what ever stood in their way, and studied their own convenience rather than the fitness of age of the tree or the quality of the timber. This accounts for the deficiency here in full-sized teak. The quantity of young trees, springing up and advancing to maturity, is very great, and if carefully preserved, may hereafter afford a large annual supply of first class timber.

We resumed our march, and soon emerged into the plains of Ananbow, many of which are of rich alluvial loam, and have lain fallow ever since, I believe, the last war, and will perhaps continue to be neglected until the genius of civilization shall have spread its beneficial influences over the land. This soil is the more valuable for cultivation on account of the facilities which the Koon Choung affords for irrigation. Notwithstanding the desolate appearance of the plains in other respects, they present various and pleasant scenes; in some parts gentle rising ground occupied by trees of *Borassus flabelliformis*, or groups of *Mangifera indica*; in others, patches of arable land covered with a tall, bushy grass, a species of *Saccharum*, among which were scattered trees of *Artocarpus integrifolius*, *Zizyphus jujuba*, and Plantain.

Innumerable fetid ponds, whose water is only rendered tolerable by necessity, also bespeckled the plains, many of which seemed to have grown out of *Kwailewine*, a term used by the Burmese to designate a sink made by the Buffaloes pawing the earth for the purpose of obtaining a smooth muddy surface to roll upon.

The country towards Baulong village is an immense flat, and continued so as far as Kyah-in village. In no district, I consider, would larger returns be made to the industrious farmer, and in no district is it more generally neglected. A propensity to seek for higher wages which the Government has unwittingly held out for the construction of public works at Tounghoo, is fatally prevalent among the people, and to such an extent has it been carried that they have lost all relish for sober industry. They will not be turned away from this, as they fancy, it is the short road to wealth. After this, it is not to be wondered that they are so much behind their neighbors of Minlan in intelligence, and that the pulse of industry beats so low.

We travelled to-day about eighteen miles, and halted at Kyah-in,

a small village which has nothing to recommend it but a good encamping ground, and so poor that we had to send to Banlong village, three miles distant, for our supplies.

20th March.—Once more the travelling baggage was prepared for moving to Youkthawah village. The first part of the road lay by the bed of the Sittang. We passed the large village of Mone standing on the left bank, and then continued our way by the high road till we came to Youkthawah village. There is a suspension bridge to be seen here that spans the choung, beneath which and on either side, the water is of considerable depth and almost still. The bridge is roughly constructed of teak, and at both extremities much worn and greatly out of repair.

The Goung-gwais of Banlong, Koon, and Phyw forests, who had attended us, on our journey since the 4th instant,—having been furnished with their instructions as below, they were directed to return to their homes.

" GENERAL INSTRUCTIONS TO THE GOUNG-GWAIS.

" *First.*—Each Goung-gwai is to make a circuit through his district at least once a year, and to visit every accessible teak tree in company with three hard working men, to whom the Superintendent of Forests will pay eight annas each per diem during this circuit, and with the help of these he is to perform the following work.

" *Second.*—The Goung-gwais are to cut every stem of the Nway or climbers found on teak trees.

" *Third.*—They are to cut or girdle all trees growing near teak which impede its growth. They are to kill before felling *Pyin Ka doe*, (*Inga xylocarpa*), *Pyinmah*, (*Lagerstræmia regina*), *Kanyin*, (*Dipterocarps turbinatus*), *Oukchinza*, (*Diospyros Melanoxylon*), &c. if found growing near a choung and affording facility to bring them away.

" *Fourth.*—In those forests where teak is the most prevalent, all other trees must be felled or killed, and bamboo bushes, shrubs, and grass should also be cut down to enable teak seedlings to sprout up.

" *Fifth.*—The Goung-gwais are to girdle all large teak trees approaching to *Nathat* or attacked by *Nyounbin* (a species of *Ficus*).

" *Sixth.*—In the appointed nurseries they are to complete all the work as in the rich forests, before the rains; they are besides

" directed to draw a ditch of two cubits in depth and breadth around them when they are not surrounded by nullahs, for the purpose of protecting them from fire, and they are to keep the ground in near the ditches clear, and to strew teak seeds over them before the rains.

" *Seventh.*—The Goung-gwais are to make a list of all the Forests singly and bestow on them names, according to their respective situations, of chouggs, of mountains, roads, &c. They are required to enter in this list, the number of full-sized standing green trees, as well as Nathat, killed and felled timber, and to forward the same to the Superintendent of Forests through his Assistant at Tounghoo.

" *Eighth.*—They are to collect seeds of teak and other trees, and are to keep them separately with the names attached to each basket; but fleshy fruits are first to be dried in the sun.

" *Ninth.*—It is ordered that all Goung-gwais should keep a journal in which they must enter all important occurrences connected with their business, and is to be laid before the Superintendent of Forests whenever he orders them.

" *Tenth.*—The Banlong Goung-gwai is to accompany both the Koon and Phyw Goung-gwais in their respective districts on their general tour this year. He is to see that every point of these instructions is duly executed as far as possible, and to countersign their reports.

" *Eleventh.*—The Banlong Goung-gwai will receive a compensation of twenty-five Rupees for his trouble.

" *Twelfth.*—The Goung-gwais are reminded that no toungyas are allowed to be cut without their special permission, and that they are to deny such permission wherever teak is near.

" *Thirteenth.*—The Superintendent of Forests will, on his annual tour through the Forests, award compensation to those Goung-gwais who have followed out these instructions with the greatest diligence."

21st March.—The situation of our encamping ground yesterday was, I should think, unwholesome, inasmuch as it was surrounded on one side by rice fields, which, being somewhat in a state of moisture, disseminated a vast quantity of malaria. The mosquitoes, too, that infested these swamps, and to whose bite I thought myself quite impervious, attacked us last night in swarms, and stung me so severely that I was obliged to wear leather gloves. These

protected my hands, but my silk *loonghee* (wrapper) was too thin to be any defence against the sharp proboscis which they thrust into my body, the sting raising large white swellings on the surface. I never suffered from the torments of these insects before, unless I except an onslaught that was made upon me by a blood thirsty crew when at Dikeou village, and of which I certainly did complain, but it was nothing compared with the annoyance, and indeed, I may say, torture, I experienced at this place.

We were glad enough to-day to leave the village at dawn, and after a journey of nine miles, over a level country, we arrived at the banks of Youkthawah stream, generally known as Gwai-douk sakan. We here encamped, animated and delighted with the beautiful scenery which we had passed. We bathed and sported in the stream, enjoying the amenity of the surrounding landscape, and the delightful air which prevailed here.

22d March.—We continued our march through the same level country, diversified by noble forests, and watered by abundant streams. On the road I found *Justicia* and a beautiful purple flower in *M. litotoma*; the latter genus I was not aware existed here, as it did not come under my observation last year. The following were also some of the most remarkable; a species of *Codonopsis*, *Porana paniculata*, remarkable for its profuse and highly ornamental flowers; a stately *Arundo*, called by the Burmese *pyoung*.

Sometime after leaving our encamping ground, we passed through a fine teak forest called Maikatab; teak of fine growth appeared almost every where, but only a few seedlings were seen. After this we came to Wahsaloo, which exhibited similar features as Maikatab, except that wherever the eye turned here, it was arrested by immense clumps of bamboos shooting out in all directions to more than twenty feet height, some of this grew so close to each other as to be quite impervious, and others falling together in gothic arches, and amphitheatres, presenting a gloomy shade beneath. In some places they were hurled down and lying prostrate like trodden grass; in several others the road was almost blocked up by great trees pushed down probably by elephants, and numberless were those which were stripped of their bark to the height of eight and ten cubits, by these stupendous animals.

In the course of the march, one of our Peons came running towards us in breathless terror and stated, that he had heard the blow.

ing and heavy tramps of an elephant : however, we saw nothing of the animal. Of all beasts of burden, the elephant is the most docile and tractable, and able to carry the heaviest load, and as numerous herds of them abound here, added to which, the facility of tracing their haunts by the mutilation of the bamboos and other trees of the forest, it would not be disadvantageous to Government to have them captured, and by a little training, they can be made available for the conveyance of troops, and moving baggage and stores from one station to the other. It may not be irrelevant to mention here, that the Burmese consider that the best elephants are only to be found in the mountainous parts of the country, and those of the plains are said to be inferior in strength, symmetry, and courage. If this is correct, their character also seems considerably influenced by the local and physical circumstances of the different countries of which they are natives.

Leaving Maikatah forest we came up to the high road, and proceeded on it without interruption, and were gratified by the frequent view of jungle cocks (*Gallus ferrugineus*), and a beautiful species of fowl of a slate color, and otherwise not unlike our domestic breed.

At 10 A. M., we came to a small Kareen village called Sinine, *Inga xylocarpa* grows most freely about it. I was very much pleased to find in one locality a few stocks of this tree, which were suffered to stand by the Kareens, after they had cleared the forest around for their toungyas. Insulated in this manner, this inhabitant of the forest appeared in all its majesty, towering to the height of eighty or one hundred feet, with a trunk six or seven feet in circumference, regularly shaped, naked, and insensibly diminishing to the height of fifty or sixty feet, where it divides itself into two or three primary limbs. The ravages which the measles or *Rubiola* occasioned here were so great, that amidst these wilds, at the foot of Kyet-foo-yway hills, I met with a good number of graves. These dismal remains of humanity, deposited here and there, threw a gloom over me, and presented my imagination with nothing but a picture of our destruction.

My curiosity led me to visit Sinine village, which displayed a revolting spectacle of disease and misery. Those that could stir about expressed no apprehension at my first appearance, but proceeded without disturbance in their usual occupations. This feeling of confidence towards us, is, I believe, at present general throughout our forest districts, and I trust our conduct may always be such as

not to forfeit it. The Kareens of this village are Baptists, remarkably sober and industrious, conspicuous for morality and honesty, and very little given to quarrelling or disputation.

The measles here, as I have been informed, generally comes associated with inflammatory fever, sneezing, defluxion of a thin humor from the eyes, and a dry hoarse cough. I have not the slightest doubt that from the local impurities, this direful disease derives its aid, as well as strength to its venom and wings to its extension. It was reported to me that it has invaded all the surrounding Kareen villages, attacking infantile existence, manhood, womanhood and old age, where its malignancy and fatality have, within the period of a week, swept away one third of the inhabitants. The latest account shews that it has propagated itself in the Thonkynghaut valley. Its extensive ravages give but a too well-grounded apprehension that it is destined to pervade our forest districts. The Kareens, as far as I have observed, are acquainted with no other remedies but those which are prescribed by ignorance and superstition. It is rather from ignorance than contempt that they in their maladies have no recourse to medicine.

The Kareens of this valley give out that they are the most unfortunate of their race. It was only three years ago that that *Cholera Maligna* had overspread it like an irresistible evil every where tyrannizing without control, sparing neither age nor sex. The method of the plague was to stay about three or four hours with any person, (for it killed five out of ten), and but three or four weeks in any locality, and then sought out for fresh quarters; and as if it disdained to be competed with any rival, either kept back all other kinds of diseases, as being well assured of its own potency, or in other words, engrossed to itself all the armoury of death and destruction. Those whom tender minds and affection obliged them carefully to attend on their families and friends, were for the most part seized on themselves. Parents forsook their children, and wives their husbands, and produced death without sorrow, affinity without friendship—and even then, quicksighted destruction found out the place of their refuge.

23rd March.—We examined the Kyouk-pone and Kyet-too-yway forests. Many teak trees were seen skirting the base of the hills, but scarcely any ventured beyond it, and the trees, instead of possessing the rich tufted foliage common to other lower parts of this forest, were meagre, stunted, and dwarfish, except such as grew on the banks of streams where the headway of the conflagration had

been probably checked by them. Some trees presented a black scrubby appearance, on account of being so often scorched and crisped by the fire. I have attributed the malformed growth of teak to fires, and this is further proved from the number of trees which I observed to have been injured at the base from their effects. A succession of fires occurring in one or more seasons, injures not only the bark but extends also to the alburnum which hurts the tree permanently.

Self sown seedlings are scarce in these forests from want of germinating power in the seeds, as I have seen many instances of vigorous trees—scattered here and there from thirty to fifty years—covered with the empty capsules of fallen seeds, and yet no seedlings were found in their immediate presence. From the cause alluded to, I would recommend the establishment of nurseries or artificial sowings of seeds here, the produce of other forests.

To-day being EASTER SUNDAY, we spent it tolerably well as the abundance of every thing enabled us to regale ourselves bountifully. The nights here were particularly cold and the days equally warm ; indeed, the vicissitudes of temperature render it an unhealthy place, and strangers are liable to fever. We were unsuspecting of the enemy we had to deal with. Dr. Brandis and several of our native followers were attacked, but a good constitution, however, and judicious treatment, soon enabled the Doctor to subdue the enemy ; not so the natives ; they were all slow of recovery.

24th March.—Returned to our camp at Gwai-douk-sakan. At my direction, our Jemadar and three Peons wended their way through the Forests, which lay contiguous to our tents, for Youkthawah village to procure a store of rice for our party ; they were much more familiar with the interior of Raungda than of a wilderness of forest. As the shades of evening were beginning to descend, several muskets were fired by us, but without effect. Night came on, and the firing was renewed, but soon after they were seen approaching with torches in their hands, very sullen and dejected. They came with a tale of perilous adventures and hair-breadth escapes upon their lips from wild elephants, which somewhat abated the storm of ridicule by which they were at first assailed by their comrades. It seemed they had heard our firing, but believed it to proceed from a contrary direction—a very common mistake with persons who have been bewildered and lost.

The miscellaneous products of the Youkthawah forests are numerous, such as *Odina Wodier*, *Sapindus rubiginosus*, *Strychnos*

nux vomica, *Kydia calycina*, *Elaeodendron integrifolia*, *Garcinia cora*, *Walsura piceidia*, *Grewia flaribunda*, *Nauclea parviflora*, *N. cordifolia*, *N. undulata*, *N. cadamba*, *Dillenia angusta*, *D. scabra*, *Blackwellia spiralis*, *B. perpinqua*, *Shorea robusta*, *Pentaptera arjuana*, *P. glabra*, *Lagerstræmia regina*, *Inga xylocarpa*, *I. bigemina*, *Melicoccatriniya*, *Dipterocarpus turbinatus*, *Duchanania latifolia*, *B. agustifolia*, *Pterospermum aceroides*, *P. subacerifolium*, *Cassia sumatrana*, *Careya arborea*, *Conocarpus robustus*, *Terminalia chebala*, &c., &c.—*Dipterocarpus alatus* or *aing* of the Burmese I found here in abundance, and was seen to spread to a considerable distance, and often unmixed with other trees. The natural aptitude of the seed of this tree for steady germination, is apparent from the fact of the ground under the parent trees being well sheeted with a crop of young plants. The greater part of those appeared to me to have been kept small by the continual inroads of the fire, for being killed almost annually, they are constantly replaced by scions of undergrowth; so that they become more and more dense at every reproduction. In some sections, however, I observed the adult trees to have withstood the conflagration. The *Aing* produces very useful timber, and may be employed for all purposes of housebuilding, especially for posts. It belongs to the same natural family with *Shorea robusta*, and affords dammer. Oil is also extracted from it, and our Province can furnish any quantity of this valuable article.

The next most common denizen of the Youkthawah forests is the lance wood, a species of *Dalbergia*, or *Myouk-shau* of the Burmese. It rises in the most graceful forms, covered with a bark of a brilliant white. Its white arms, interlacing with the branches of other forest trees, add one of the distinguishing traits of grandeur and beauty to the forest. It is still the loftiest, and its summit is seen at a distance, towering far above the heads of the surrounding trees.

25th March.—We directed our way to Bombadee village. The ground began to rise in a gentle acclivity, until we reached the foot of the hill. The ascent occupied us about a quarter of an hour. The road was winding, but far from steep or difficult; for the greater part of it I rode my pony. I observed in the course of two hour's excursion, one hundred and fifty loozars (teak), and three hundred yats, and they were evidently at home, for their stems were regular. Under the old ones no seedlings were to be seen.

The district of Bombadee is a plain before the hill is reached,

when it then becomes gently undulated, and rises scarcely into a mountain hardly exceeding four hundred feet in height. It is, however, tolerably well watered, although many of the lesser streams dry up annually, entirely or in part. The hill formation, as far as I can judge, is of grey granite, gneiss, and partly of trap consistence. It appears broken into irregular ranges, with here and there detached masses thrown up, as if by some great convulsion of nature. The granite of which it is composed is of a softer kind, and crumbling away with the weather.

26th March.—We left our ground near Bombadee village about two in the morning, to enable us to enter Phraw village, on the Thoukyaighaut stream, an hour or two after sunrise. We picked the way by the aid of a pale moon across which a few clouds would every now and then lazily flit, and cast a dark shadow; but as the road the whole way was excellent, we accomplished our object, the Peons with the elephants arriving five hours after us, much fatigued and quite overcome by the march, the distance being about twenty five miles. On the approach of day, and as the country around became more distinct to our view, we found it totally uncultivated. The ground on the high road was covered with *Dalbergia*, *Lagerstræima regina*, *Inga xylocarpa*, *Acacia elata*, and *Antidesma paniculata*; while the swamps were overgrown with a long kind of grass that attains to the height of ten feet, and the villages we passed were neither numerous or of any size.

Two miles before we reached Phraw village, we passed Shoaygyeen-moung forests. Teak trees were, in general, of irregular growth, and low stature, growing on laterite; the best having evidently been removed sometime ago, the average girth of those on the spot at four feet from the ground was about five feet, and the length of the undivided stem near ten feet. Some felled trunks lay scattered about the place of monstrous girth; others doomed to the same fate stood erect, all charred and black, their vitals burnt out, and yet still wearing their fresh and vigorous coronal of green.

27th & 28th March.—During these two days, we examined the Thoukyaighaut forests. They run a considerable way inland and contain a great number of valuable teak trees, which we found growing along the valleys in a light, dry, and rich soil, as well as on the hills composed of soft granite, and appeared to me to be of the best quality, being of immense girth, tall and straight, although their growths in some sections were impeded or disturbed by underwood, bamboos, and climbing plants. The greatest length of the undivided

stem of some of them I measured on this occasion, and last year, proved to be from sixty to eighty cubits, with a girth of from six to eight feet round. The Thoukyaighant forests, as far as I have ascertained, are divided into twelve divisions or tracts, but the Kyoukpadoe and Kya-plugyee stand pre-eminent at the head of all others. In the former, a considerable quantity of teak exists, particularly of fine growth, and I would recommend it to the notice of Government as producing excellent timber from the matured trees. The latter is remarkable as containing several thousands of the finest possible young trees and seedlings, which have grown up spontaneously, intermixed with a sufficient number of full grown trees. The teak in the remaining tracts, is distributed irregularly, as several spaces occur without it. Emphatically speaking, the Thoukyaighant forests are one of the best forests in the Sittang valley, and abound in luxuriant profusion with the noblest vegetable productions: the number and variety of other forest trees produced here is, I believe, quite unparalleled, viz:—*Lagerstræmia regina*, *Dignoniaspatholea*, *B. adonophylla*, *B. coronaria*, *Adesmanthera paronia*, *Inga xylocarpa*, *Melicoca trijuga*, *Eriolana tiliifolia*, *Cedrela toona*, *Sicidenia chiekrasse*, *Dalbergia*, *Careya arborea*, *Pterocarpus dalbergiodes*, *Melanorrhæ usitata*, *Walsura piscidia*, *Dipterocarpus turbinatus*, *D. alatus*, *Dillenia angusta*, *D. scabra*, *Shorea robusta*, *Gordonia floribunda*, *G. integrifolia*, *Pentaptera arjuana*, *P. glabra*, *Kydia calycina*, *Acacia sirissa*, *A. elata*, *A. catechu*, *Grevia spectabilis*, *G. hookerii*, *Olinia Wolleri*, *Vateria indica*, *Hibiscus macrophylla*, &c. The greater number of these trees have the peculiarity to rise straight up, and to elevate their branches far above the lower vegetation of the forest; many having a bare trunk of from forty to eighty feet in height.

29th March.—Above the village of Phraw, on a ridge connected with Cheo-bah hill, there are three handsome pagodas. They are of solid brick and mortar, richly gilt, and having small chambers around them filled with the images of Gaudama. The heights of the pagodas I should think to be about forty feet. A man of taste surveying them does not contemplate gloomy edifices, where heaviness is substituted for dignity, height for sublimity, and size for grandeur; nor measures a pyramidal mass of stone work, stretching up to heaven in defiance of nature and propriety. On the contrary, he will find himself in a locality where lightness, and color, and elegance of proportion,—contrasted with the gigantic mountain scenery about them,—set the beauty of these pagodas more lovely, and their durability more astonishing. There is no endeavor to compete or imitate the sublimity that encircles them; they are, as it were, satis-

fied to be the "master pieces" of art, and therefore they and nature live in blessed harmony together, and set off each other's beauty.

These pagodas enjoy a higher reputation than any other religious edifice in the Toung-hoo district; they owe it, probably, to the legend which supposes them to contain Gandama's *dattaw* or excrement. They are frequented by many strangers, especially the Shans, during the festival in March. Nga Thetshai, our Goung-gwai, who resides in Phraw village, gave me also to understand that they are the only temples mostly resorted to by the inhabitants of Toung-hoo and its vicinity, the others being attended only by their *Phrawtagas* or founders.

The position of these pagodas is remarkably well chosen; all that a combination of natural beauties can achieve I beheld here in perfection; their effect is not diminished but rather augmented by the rude appearance of the village below, which consists of about twenty houses, situated about two hundred yards from the 'choung, in order to be secure from inundation to which the plains are subject periodically. The houses are all, without exception, built with bamboo, and neatly thatched with the *Imperata Cylindrica*, and having a decided slope, a proof that this country is within the reach of violent rains. Near these are six Zayats, one of which is distinguished for its magnitude, rather than for the elegance of its plan and workmanship.

The inhabitants of this place—according to the barbarous opinions and customs of the Burmese—belong to a class of outcasts, and labor under civil disabilities. They are called *Phraw-Kyoon*s or the slaves of the pagodas, and are forbidden from having anything to do with the respectable and uncontaminated. But now, under our Government, they are deemed honest people, and the "respectable and uncontaminated" do not scruple to receive them into their society.

On the Chee-bal hill stands also a remarkable rock of laterite about six cubits high. The guide who conducted me to it, informed me that formerly the sides of this rock had two or three passages—although all traces were invisible—that led to cells partly hewn out of the solid rock, and partly excavated from the ground. These chambers, two or three in number, were said to be of small dimensions, but of perfect workmanship, and so well constructed, as to form comfortable places of retreat. The legend says, that a *Yai-thai* or recluse had concealed himself here some half a century ago. If all what has been communicated to me is "the truth

and nothing but the truth," by what hands these singular retreats had been formed and fashioned, or for what purpose they had been originally intended, is, even at this remote period, a matter for speculation. Some natives believe them to be the work of *Beeloo*s or giants, who, in old times, had inhabited them to protect Guadama's relic a supposition—the belief in which the palpable inadequacy of their dimensions even to giant's babies—we must deny. When however we consider the troglodyte habits of the natives in all hot climates, the eagerness with which, by retiring into caverns, they shun the alternate plagues of the solar beams and the drenching rain, we might not be surprised that they prepared this also, in time immemorial—for the same purpose. At a later period, when they began to enjoy the blessings of security and wealth, and had opened their eyes to sentiments of taste, they probably appeared to have raised houses for their accomodation.

I will not venture to say more regarding the Thoukyaighaut valley, but may be allowed to remark, that he who has been in it is not likely to see many places to surpass it, and few to equal it. I was never tired of looking at the luxuriant vegetation from the Pagodas, and from which a person can have a "bird's eye view" of the country around—which is extensive and grand, in happy unison with the keeping of the whole picture. It was, therefore, with regret that I left it this evening to fix my quarters at Toung-hoo.

30th March.—Encamped. It is exactly a month and a half to-day since I quitted Rangoon, and I am glad to record that I never enjoyed better health, though the hardships I have encountered exceed any thing that can be imagined by those who have not essayed the same kind of travelling in a similar country.

In this morning's peregrination, I observed the long line of the Northern hills, and which, backed by a perfectly clear sky, produced in me sensations which I had not felt for a long time, and I could scarcely take my eyes from the fascinating object. Perhaps it was owing to the association of my ideas with the happy tour, I formerly made there with Dr. McClelland. The difficulties to which this able and energetic officer was exposed at that early period of our conquest of the country, in those wilds, may be easily conceived, but we can as readily imagine that all these were more than balanced in his mind by the delights he experienced in traversing a district untrodden by any European before, and I can bear my humble testimony to the undaunted courage he displayed in pushing on his investigations, and the firm-

ness and perseverance of purpose he showed, and nothing but impossibilities could shake or divert him from its direction.

It may not be amiss to give here a passing notice of the city of Toung-hoo previous to continuing our journey.

Toung-hoo is a city of undoubted antiquity, and was once celebrated for its extent and magnificence. The extravagant praise bestowed on it by its early historians, must, however, be understood as applicable to a former city, whose walls and ditch are still traceable, and of which now only the shadow is seen. The present city is, nevertheless, grand, and surrounded for about five miles by a brick wall, (almost in a delapidated state), and ditch. From this I should imagine that it must have been, at one time, a military post of importance. It is built on a sandy alluvial plain on the west side of the Sittang river, but is higher than the bank. The localities about Myik chee-bouk, and downwards the river, are ineligible during the rainy season, from the excess of surface water which they contain. A few large well constructed drains—the walls and bottom being inlaid with stone—with a good descent to the river would remedy the evil. But, slowly as things are progressing here in the public work department, two or three years must elapse before such consummation can be attained.

There are in the fort small scattered villages or rather a group of houses situated apart, some of them imbedded among trees of the Jack, Mangoe, Tamarind, and Plantains. There are also many Kyoungs and some of the pagodas are remarkable. Most of the latter are still standing, and nearly entire; and such is their solidity that they seem, if not absolutely to foil old time, to yield to him almost imperceptibly. The big and the principal pagoda is situated in the centre of the fort, and like the *Shoay Dagon* of Rangoon, it has been fortified, and the platform is, I believe, occupied with stores belonging to the Commissariat Department. A fine road has been constructed running from North to South, and another coming at right angles to it from East to West. The bazars are built on their sides, which no doubt present an imposing effect. The fruits and vegetables exposed in them for sale are chiefly

Citrus aurantium, the best, are said to be brought from the hills by the Kareens of the neighborhood; *Citrus aci-*

FRUITS. *da*, *Citrullus cucurbita*, *Psidium pyrifera*, *Cari-*
ca papaya, *Mangifera oppositifolia*, *M. indica*,

Ananas sativus, *Elæagnus conferta*, *Sandoricum indicum*, *Zizyphus jujuba*, *Nephelium*, *Artocarpus integrifolius*, *Averhoa carambola*, *Morinda*, plantains, &c.

Dioscorea globoza, *D. Atropurpurea*, *Phaseolus trilobus*, *Raphanus sativus*, *Cantoluculus batatus*, *Cucurbita maxima*,
 *VEGETABLES. *Solanum melongena*, *Lagenaria vulgaris*, *Tomato*,
 the legumes of the *Agati grandiflorum*; the leaves and pods of *Moringa Pterygosperma*; a wild, coarse, and indigenuous species of *Asparagus*, *Colocasia antiquorum*, *Cyomopsis psoraloides*, &c. &c.

The new cantonment—that is the space between the river and the fort—extends considerably to the South. It is as well chosen a locality as circumstances would admit, and possesses, in a military point of view, all the advantages of position to protect the frontier, and the command of the river. The public buildings are built of wood and thatched, except the magazines, which are wholly built of brick. The surrounding country—on the North, West, and South sides of the Fort—is gifted with almost every blessing which Nature, in her greatest prodigality, could bestow; a soil the most exuberant, and therefore rice is cultivated to a considerable extent by the Burmese. The population of Toung-hoo city has been variously estimated, and no doubt been at a very different standard at a different period. At the present the most favorable accounts do not make it more than five thousand—exclusive of the Military and camp followers—and the true number is perhaps still less.

The climate of Toung-hoo is said to be almost analagous to the climate of Rangoon. Its physical characters may be conveniently divided in the year into three seasons. Under this arrangement the cold season embraces November, December, January, and February. The mornings and nights are cold. The weather throughout is most genial and pleasant; the thermometer seldom rises as high as 88° in the middle of the day. About the commencement of February, the dews begin to increase and are sometimes so dense and foggy that they continue till 7 o'clock.

The hot season includes March, April, and May, the heat is very oppressive when exposed to the sun. The thermometer in the shade, is said to rise not higher than 93°.

The rainy season comprises the remaining months of June, July, August, September, and October. It may, however, be remarked, that the latter end of May is considered as the connecting link between the hot and rainy seasons. The commencement of the monsoon is attended by loud claps of thunder and vivid flashes of lightning.

During the months of July and August—especially the latter, the showers are very severe.

1st April.—The dawn of day saw us wending our way to Tabek-kway, a village on the Khaboung stream, and about thirteen miles from the city of Toung-hoo, and pitched our tents on a field from off which the harvest had been gathered and carried away. The Burmese of this place talk, indeed, of the beautiful thick forests of Teak with which the plain was once covered, but the reasons assigned for such a belief, appear to me to be only a few uncertain traditions, and occasional expressions of some old writers. Such forests may, probably, have been deprived of their timber by wilful waste or accident, but so extensive as represented could not be altogether obliterated by the hand of man, in the course of a century, even though, as has been probably the case in Tabek-kway, these series of years had passed in unceasing discord and contention.

2nd April.—We visited a small forest about half a mile from Tabek-kway village, and lying on the right bank of the Khaboung stream. I noticed on a high ground several patches of fine full grown teak, undersized, and seedlings—very few of imperfect development—growing along with *Bignonia adenophylla*, *B. spathodea*, *B. coronaria*, *Inga xylocarpa*, *Terminalia belerica*, *T. violata*, *Gmelina arborea*, *Dillenia angusta*, *D. Scabra*, *Dalbergia*, *Walsura piscidia*, *Odina wodier*, *Lagerstræmian regina*, two species of *Butea*, &c.

In one or two localities the ground was literally strewed with immense teak trees, some of them were cut into short lengths, others into long logs of twenty cubits, all injured more or less by fire; still I consider these would yield excellent planks and beams by judicious conversion.

3rd April.—Directed our course to Thabyaiwah village, and during the march, I frequently ascended the low hills on both sides of the Khaboung stream, and came across several fine straight trees on their sides and summits—with a partial distribution of young plants—but they were widely dispersed and bearing but a small proportion to the other trees with which they were associated, such as *Semecarpus anacardium*, *Cedrela toona*, *Steychnos nuxvomica*, *Inga xylocarpa*, *Naucllea cordifolia*, *Microlena spectabilis*, *Xanthoxylon budrunga*, *Cordia myza*, and two species of *Pentaptera*. On approaching, however, the Thabyaiwah village, teak became more frequent, and the number I met with to-day may be computed at about two hundred full sized and three hundred and fifty undersized trees.

4th April.—We stemmed the Khaboung stream for a mile, and then ascended its right bank near Sain-yai village. An excursion was made to a range of teak forest. Its outskirts approached near the stream, but the principal extent of it was all inland, and from the nature of the ground in that neighborhood, I am of opinion that it is unfavorable for the conveyance of timber to the main stream. A considerable number of teak trees of all ages is to be found there, but after a minute examination, the evidence of indiscriminate cutting for toungyas was sufficiently apparent in the number of stumps of teak, interspersed with large sized logs, destroyed by fire, marking the site of their former existence. It is a subject of regret that a tree so valuable should be destroyed in such a manner, when a little care and management on the part of the hill tribes might have prevented unnecessary destruction, and preserved the sources of the revenue.

Our camp being at Nghet-phyew, we accordingly descended into the Khaboung, and came to it about 10 A. M. The village of Nghet-phyew—containing about six sheds—is situated on an altitude; one might survey from it with pleasure the luxuriant prospect around. Certainly, when the sober shades of evening have invested the landscape with a chaste sublimity, it is unrivalled, and indifferent must be the bosom which is not influenced and enraptured by its calm and serene beauties.

At the request of Dr. Brandis I transmitted by Mr. De Renzy the following Burmese order for the information of the public, and when literally translated, it runs thus.

“Notice is hereby given, that whosoever may, in the course of this year, bring down any logs of Teak to the banks of Phyeu and Koon streams above the rapids will receive the following payment per log:

For Yats.....	2 Rupees.
“ Loozars.....	5 “
“ Doogies.....	15 “
“ Yard and Mast pieces	25 “

5th April.—At less than seven miles from Nghet-phyew village stands the old romantic *sakan* of Kyetsha. The road to this place lies by the bed of Khaboung cheung and through a succession of the most agreeable scenes; forests of bamboos, trees, long grass, and toungya grounds, presenting continually a luxurious interchange of every species of foliage. The hills are not very lofty, appearing like the billows of a troubled sea in a calm succeeding a storm.

About half way between the two places, one is attracted by a sombre mass of rocks—carpetted with a species of moss called *Lycopodium*.—hanging over the stream, which flinging their huge dark shadows frowning over the spot, presents a scene which the mind at once loves, yet dreads, to contemplate. From this spot the road leads by an interrupted line of teak, and trees of *Melinoca trijuga*, *Dipterocarpus turbinatus*, *Inga xylocarpa*, *Cassia Sumatrana*, and others, which smile from the brows of the hills and in whose refreshing shades, not without objects of natural curiosity, a traveller may well let the noon day sun pass over his head.

6th April.—This morning we began our progress up the hills, under the guidance of *Karcen-saw*, who, though between sixty and sixty five years old, stumped fast and firm before us. This individual is of a strong natural sense, and has always contrived to command respect among the Kareens. We had several ascents and descents that lasted for some distance, and then terminated in a tolerable level road that ran along for seven miles on a ridge of hills—composed of a light, grey, and sandy soil resting upon, and passing into slate clay of a sandy structure and friable consistence—till we came to *Mayan-sakan*.

Since we left *Toung-hoo* the heat had become intense, and I was not sorry to be again among the hills, refreshed by the cool breezes, and the bracing nights, that render a hill climate so invigorating and delightful. From the extreme steepness of the first part of the way, the elephants exhibited unequivocal symptoms of weariness, and notwithstanding their apparent unwieldiness, they went up and down the eminences with great ease; and it was gratifying to observe the caution with which they put their steps, feeling with their long prehensile probosces every stump or stone that they suspect to be loose, before they venture to place their feet on it.

The forest growths present quite an unlimited variety of timber, among which, *Inga xylocarpa* predominates.

Next in order comes two species of what is called by the natives *Htounk-kyan* (*Pentaptera arjuana* and *P. glabra*) which grow to a lofty height with a trunk of from eight to ten feet round. The timber they produce is strong and durable—not to say any thing of resisting the attacks of the teredo—as it is scarcely less valuable than teak itself. I feel confident that a fair trial would disclose its value for Ship building. Dr. McClelland, as far as I can recollect during his late tour, strongly recommended to the Brigadier Commanding to employ it for Public works at *Toung-hoo*.

Teak (*Tectona grandis*) holds a third place, and appeared to me to be most peculiar to the country—individually it is of a magnificent and universally vigorous growth—exhibiting clean trunks of six to eight feet in girth and from eighty to one hundred feet high; such timber would afford excellent mast pieces and spars for Naval purposes. In other words in these forests, I remarked a grandeur in the form and size of Teak trees, a depth of verdure in the foliage, a magnificent prodigality of their growths, that distinguish them from those found in other sections of the Khaboung district. The trees are large, tall, and arise aloft, like columns, generally free from branches. They may be truly denominated kings of the Khaboung forests; some of them are wreathed with a royal robe of *Nwai* or large parasitical creepers. The other trees composing the forests are *Cedrela toona*, *Nauclea cordifolia*, *N. cadamba*, *Lagerstramia regina*, and *Strichnos nuxvomica*. This last is a very common tree and known as *Khaboung* to the Burmese; its most remarkable appendage is the fruit it bears, which is also called by the same name. It is poisonous and resembles *Ægle marmelos*. The bark of the *Nuxvomica*, I understand, possesses febrifugal virtues, and being a common and widely distributed tree all over the province, might be made an article of great importance. The timber it produces is of a very small size, but hard, lasting, and elastic, and much used by the district people for the shafts of carts where elasticity and strength are desired to be combined.

Cedrela toona. This is the Arracan toon wood and called by the Burmese *Thit-ka-dee*. The timber is scarce and found widely dispersed. In the arts it is very little inferior to teak in hardness and durability, and furnishes a beautiful timber resembling *Swietenia Mahogoni*, while the bark possesses antiseptic and febrifugal properties. The flowers are said to be employed in Bengal in dyeing cotton, a beautiful red colour. The Burmese are not acquainted with the value of this dye, and the article is never found in the bazars.

Nauclea cordifolia is a large tree and produces a light serviceable timber, and, I should think, well adapted for making combs, mail boxes, and brandy cases.

Nauclea cadamba. This and one or two species of *Eugenia* would afford excellent materials, from the fineness of the grain, for fancy works in cabinet making. It also yields, like the *Heritiera* excellent charcoal for the manufacture of gun powder.

Lagerstramia regina is equal to teak for house building, and

is always in frequent demand for posts in Rangoon. Under the Burmese name of *Pyinmah*, there are two kinds, viz., *Laizat* and *Yuetkyee*. It is said that the paddles and oars of war boats, belonging to the king of Ava, are made of this wood. The tree is remarkable for the beauty of its flowers.

Besides the above mentioned trees there are several species of white wood belonging to the family of *Urticaceæ*, *Spondiaceæ*, *Sterculiaceæ*, *Anonaceæ*, *Bignoniaceæ*, &c. which are soft and useless as timber and employed by the natives for fuel.

10th April.—We are now in Prome district having encamped this morning at ten o'clock in Tabbee-sakan. Since the 6th instant, we passed through a continuous stripe of timber trees. In its natural state an unbroken forest spreads over and around the Khaboung and Tabbee systems. The human hand has, indeed, marked the surface by opening a few spots, for cultivation and villages, but the far greater part remains the empire of jungle trees and teak. Considerable forests of the latter occur in various parts of the country in patches, each tree being surrounded by numerous seedlings, wherever they are exposed to the rays of the sun. But it is obvious, even to the weakest capacity, that they—I mean an admixture of the young and old teak trees—are situated several miles distant from very good water conveyance; they must, from this cause, prove as useless as if they were growing on the Alps. A question might be raised as to the practicability of felling the full sized trees and squaring them on the spot. I consider this would be a difficult task almost insuperable, considering the scarcity of inhabitants, and their utter aversion to hard labour. It remains, however, to be shown how these magnificent trees, found here in abundance, are to be brought to the water side over a country not only destitute of roads, but of such a nature as to render it extremely doubtful whether any practicable ones could ever be found. But we have great expectations from the Kyetshâ, Mayan, Nghetphyew, and other lower forests where abundant supplies of teak may be obtained, so as to form a considerable source of revenue to Government.

Our way across the Yomah hills was over the well beaten track of Dr. McClelland and which I had myself trodden before with that officer. It is rich in botanical treasures. I noticed this year *Dendrobium Pierardia*, *D. aggregatum*, *D. cretaceum*, (the two first with purple flowers and the third white), *Melastoma malabathricum*, several species of *Impatiens Balsamina*, an aromatic species of *Andropogon*, and a very handsome rose-coloured *Urna*. The following plants

also came under my observation after leaving Mayan-sakan. *Thunbergia* a large creeper, and I believe, of the *Justicia* tribe and the natural order of *Acanthaceæ*, producing very handsome blue or yellow flowers with a dark throat; *Osbeckia* (I believe its specific *canescens*) out of flowers. I have frequently met with this suffruticose plant in Maulmain, about our garden at Mopohn, with flowers of a delicate and pleasing purple colour. Mr. Mason, in his valuable work on "the natural productions of Burmah," has not given us the native name for it. To make up the omission, I may be permitted to mention that the Burmese call it *Oh-boke*. In another place, I saw *Tecoma* appearing in all its wild luxuriance, dressed with clusters of trumpet flowers of orange colour. To attempt to enumerate them here would be vain both from want of books and their endless variety; suffice it to say, I saw many novelties and recognised a great number of my old acquaintances, robed with flowers and fruits, and forming the most singular and diversified, and most vividly coloured, while they dispensed odours the most delicious. Amidst a diversity of plants mentioned above, we had to regret there was no grass for our exhausted ponies; however, among the bamboos, which everywhere covered the surface of the ground, they were observed to browse.

15th April.—I had been suffering ever since we placed our foot in Prome district, with *cephalgia* accompanied with giddiness so as to disable me to bring up my Journal until now. During the last five days, we passed through Singoung forest and the patches intervening between it and Nga-nyaw choung. We also examined a small forest lying close to Pyintha village. I was thus enabled to inspect all the principal teak forests on the northern Naving.

I noticed, in Singoung forest, teak of magnificent growth and dimension growing in clumps, and seldom at any considerable distance from the choungs, the largest trees being on the higher altitudes. There were very few trees of imperfect development. I should estimate, from what I saw, and from such information I could obtain, the contents of this forest to be from eight to ten thousand trees exclusive of undersized timber. As we descended to Nga-nyaw choung, teak insensibly and rapidly decreased, where no doubt it was once the scene of depredations of the teak destroyers. Several deserted tounyas were passed in our way and found that they had greatly disturbed the forest vegetation; and, although all the individual teak trees and other intermingling families had been removed, yet the soil having been exposed to the influence of the sun and atmosphere, the teak

seedlings which I saw, coming out like the teeth of the dragon of ancient poets and old naturalists, were of the intermediate or second stage, and that they were evidently of the produce of the latent seeds which had lain dormant under the shade. This is proved from their being nearly of the same size and age. It would thus appear, as I have always maintained, that the vegetative force to the effectual development of seeds, depends upon light and air. This is the reason why in these open and ventilated tracts, I found they were palpably of the same generation. It is not to be doubted that there may be some rare exceptions, but I feel assured that the broad fact will only be confirmed by further examination.

In Nga-nyaw, I found teak of all ages, measuring from three to five feet in girth the major portion being of small dimensions, and, on a careful average, I conclude the number of full sized to be eighty and about two to three hundred yats. A great many young shoots from the stumps of full sized trees also were met with.

Scarcely any timber of large growth is to be seen in the forest near Pyintha village. It contains between two and three hundred undersized trees only from two to four feet in girth.

I am glad that one very satisfactory point has been ascertained this year in regard to the Prome forests, namely, that of the existence of a great many teak seedlings which we saw mantled with small tender leaves. Last season they did not come under our observation, as we were here about the commencement of the hot season, and the seedlings being then probably in their twiggy and naked condition were not, therefore, recognizable. In fact the face of the country at that time, as far as I can remember, assumed an unusual sterile aspect, which was in some measure heightened by its starved vegetation, having then been destroyed by fire. Even now the Teak forests have seldom that fullness of foliage, and I have been assured by the people of this district that, during the dry months, the trees are deciduous, but when at last a couple of showers of rain descend—which be it remembered we had before we entered these forests, on the night of the 13th March, whilst encamped on the right bank of Kayoo choung—in the course of a few days they are clothed with the most delicate and tender leaves of green.

Dr. McClelland and myself were led to infer that seedlings of spontaneous growth were unfriendly to the Prome forests so as not to be found in them, and that the rational cause of their general absence was ascribed to fires, and that by removing that evil the

vacant spaces would be filled with young plants. Indeed the characteristic dryness of the climate and almost the total absence of water—as wet situations are scarcely to be met with except on the sides of some chougns—this district as I have said before, is occupied by a very poor vegetation not like that met with in other forests.

The forests above described have been very much destroyed by hill cultivators. The regular system of clearing tracts shows (as it came under my observation) that some three hundred teak trees have been cut down. Each tree, taken on an average at ten Rupees intrinsic value on the spot, would deprive the state of a revenue of three thousand Rupees. I see no prospect of justice being done to Government if we permit the continuance—especially in rich localities crowded with teak—of this prevalent, reckless, and wasteful system, and in opposition to the following notification, dated 26th September 1853, enacted for the preservation and maintenance of our forests.

“ Notice is hereby given that all the forests in the Province of Pegu being the property of Government, any person who shall cut, mark or fell any Teak timber, in any of those forests, without authority, will be liable to be apprehended and prosecuted according to law.

“ All timber which has been cut in the Government Forests from the commencement of the present year, or which may hereafter be cut without license, will be liable to confiscation.”

I advocate that the notification should be carried, in all cases, to the very letter and unless this is done, I must say that it is impossible for the Forest Department to protect the interests of Government. The infringement of the rule is not confined to Prome district, but the system, I am sorry to remark, is general throughout all the forests of the Province.

Timber trees found in the forests, on the northern Nawing which we visited were *Hopea*, *Blackwellia*, *Shorea*, *Walura*, *Pentaptera*, *Nauclea*, *Kydia*, *Careya*, *Inga*, *Spondias*, *Odina*, *Terminalia*, *Melicoca*, *Acacia*, *Dipterocarpus*, *Pterocarpus*, *Conocarpus*, &c. I was also glad to meet with a beautiful orchid, a species of *Habenaria*, and a herbaceous plant of the genus *Kampfer*, the roots of the latter are used by the natives medicinally.

Of the timber trees *Odina*, *Terminalia*, and *Acacia* appeared to be quite common.

Odina rodier yields valuable wood, and I consider it well adapted for house posts. It exudes, as I have mentioned I believe in my

Journal in 1854, gum but from further experience, I find it is of a soft, nearly fluid state, and hardens in the air, without losing its transparency, and may be extensively used for various purposes in the arts ; it, however, dissolves in water, forming a viscid solution. I have been informed by the Karens that the tree exudes freely in the hottest season, when a large quantity can be procured. From the abundance of this tree, called by the Burmese *Nga-bai*, affording gum, it may become an article of importance.

Terminalia chebula, or *Kya-zoo* of the Burmese, has a trunk straight and lofty, and shows a considerable diameter, so as to be made into solid wheels for native carts ; strong, elastic, and durable. The fruit of this tree is much used by the Burmese practitioners, as an external application, both in the incipient and advanced stage of *Ophthalmia*. I have often seen the Roman Catholic native christians of Rangoon employ it also, either alone, or with alum rubbed up in water, and applied round the eye, and, from what I have seen, it is perhaps the best application for *Ophthalmia*. I believe its medical property is unknown to European practitioners, I would suggest, on the strength of the above authority, that it should be subjected to experiment.

In a commercial point of view the species represented is deserving of notice. The fruit, mixed with ferruginous earth, imparts an excellent black. All the native ink is made from it. The bark of the tree may be used for tanning. It has also a place in the *Materia Medica* of the Burmese.

Acacia catechu. It is *Shah-bin* of the Burmese and furnishes large, hard, and tough wood. I have seen it applied to various parts of housebuilding, and has been found to resist the influence of the weather when used for posts, railings &c., &c. In Tharawadie district, it is mostly employed as uprights to support the telegraph wires.

The tree affords cutch—a kind of inspissated vegetable juice—extracted by the Burmese, beyond our frontier on the Irrawadie, by boiling the wood and evaporating the decoction by the heat of the sun. The cutch is employed by the natives in the composition of *Piper Betle*, as also in some processes of dyeing.

Near Kanjin village, I found an outspreading *Neem* tree or *Azadirachta indica*. It is *Thin-bau-Ka-ma-ka* of the Burmese, and the leaves and bark, rasped down and infused in coldwater, are used by them as a specific for all kinds of skin diseases, or the result of violence, as a bruise. The headman of this place assured me that

he has employed the remedy again and again in such cases with perfect success. It would be well to try their properties. The timber of the *Neem* is soft, and though useless for shipbuilding purposes, still on account of the fineness of its grain, it may be rendered valuable for house scantlings such as flooring boards &c.

About noon the sky became very cloudy, and threatened to rain; but it afterwards cleared up, and the afternoon was beautifully fine, though unpleasant by a strong wind driving a large quantity of dust and dry leaves into our tent, and besides rendering our encampment not altogether safe, as the decayed branches of the tree, under which we had pitched our tent, were falling about us in every direction that the violence of the wind had broken off. This annoyance, however, abated sufficiently in the evening to admit of my taking a stroll to Kanjin village, and found it to contain about thirty houses. Last year, when I visited it, it was not so populous; and, on enquiry, I was informed by the Goung that several families, from the Burmese side, had come in to escape oppression. In going through the village, I communicated with the refugees, and in a friendly manner, told them that as they have voluntarily become British subjects they would do well to continue under the protection of our Government; in particular, I invited their attention to that part of the proclamation dated 20th December 1852—of which I furnished them with a copy—which says “the Governor General in Council hereby calls on the inhabitants of Pegu to submit themselves to the authority, and to confide securely in the protection of the British Government; whose power they have seen to be irresistible, and whose rule is marked by justice and beneficence.”

Two or three deep pools of some size—containing a great quantity of crystal and transparent water—occur in the bed of the choung contiguous to the village; and in one of them, I saw a party of grown up women bathing themselves without a single article of covering on; nor did my presence—I wished I had never been led to the spot—seemed at all to disconcert them, for they went on with their ablutions as if quite unconscious of the indelicacy of the act. Such, however, is a common occurrence in the forest district.

16th April.—In our march from Kanjin to Nga-mway-zeen, I saw teak very much scattered of all ages growing and thriving, in every variety of locality, with the species of *Dipterocarpus*, *Shorea*, *Acacia*, *Inga*, *Hymenodictyon*, *Buchanania*, *Bignonia*, *Blackwellia*, *Antidesma*,

Nauclea, *Pterospermum*, *Castanea*, *Albizia*, *Conocarpus*, and many others.

Our road continued for a distance of six miles, the country varying in its scenery at almost every step we took, and every where continuing to be beautiful. The delicious verdure, bordering the small streams, with here and there a peep of villages bursting from the half-concealed foliage of woods, formed a striking contrast with the half-burnt bamboos and the leafless *Acacia* that covered a ridge of hills not far from Nga-mway-zeen.

The Teak trees observed to-day have generally the disadvantage of not carrying their girth—tapering quickly—to a great height; notwithstanding this, they appeared to me to be good and strong. In some instances, I noticed knotty trees bearing the character of being crooked. On being tested they all no doubt prove to be hard, sound, and close grained, admirably adapted for ship crooks.

17th April.—From Nga-mway-zeen we marched towards Kha-din-nga-zeen-sakan. We passed through Choung-zouk forests containing a great number of first class, and very many fine young teak. I estimate the total number to be about two thousand trees. There is, however, some difficulty in dragging the timber in consequence of many small hills and water courses. This accounts for the particularly fine growth of the trees, especially those situated about the upper part of the Choung-zouk stream, where they were comparatively preserved from the axe, being straight, clean, and rather of large size. I have every reason to believe that much fine teak timber can be procured from this locality; and, with the view of rendering the long and large full sized trees capable of transport, I suggest that they should be cut into short lengths. This kind of timber, I believe, is best suited to the gun carriage manufactories, where length is of no consideration and great girth is only required.

18th April.—We left Kha-din-nga-zeen-sakan this morning with feelings akin to regret, as there were many valuable forests worth seeing—although I had explored a greater portion of them with Dr. McClelland last year—which the shortness of our time had compelled us to leave unvisited. The road we pursued had a gradual rise, for the first two miles, through a fine wood chequered with a few undersized teak trees; then two or three ascents—not abrupt—along the face of bamboo covered hills, sloping down to the Tantabin plain; and, prior to our coming up to it, I observed down the perpendicular faces of some of the avenues, fragments of large stones, broken off

from the cliffs above, effacing the paths which had been formed beneath them, as well as filling up the beds of the choungs, and which probably, in course of time, will convert them into cataracts.

After leaving Tantabin village, we pursued a cart road and passed by a low ridge of thickly wooded heights—principally composed of wood oil trees—and then the landscape presented a panorama of undulated rice fields, dotted with numerous peaceful rural villagers, and bathed in the light of an ascending sun. Here and there also arose wide-spreading mangge and timber trees, whilst innumerable fan like palms and Cocanut trees either singly or in groups, completed the picture. To me it was a perfect “Elysium field” and well compensated us for past disappointment. The timber trees which I allude to are :

Dipterocarpus alatus which is abundant and good.

Acacia catechu not very large, employed by the people of this place for ploughs, and other agricultural implements.

Lagerstraemia regina used here as house posts and uprights.

Sapindus rubiginosus. It is similar used as the preceding, but is said to be rather brittle.

Azadirachta indica. It being a soft wood the natives cut it into planks, which they employ for making *tahlahs* or coffins.

Melicoca trijuga. It is used, on account of its great strength and solidity, for cart wheels and oil mills.

About 11 o'clock we encamped in Oak-shit-toung village on the margin of the Naving choung; no water was visible in its arenaceous bed, and the villagers were seen to make several cavities or pits, when the latent fluid oozed forth, and filled them, while undergoing at the same time the process of filtration, it was beautifully clear.

Dr. Brandis parted with us this evening for Prome. I was left in charge of the camp with directions to move on to Pounday where he proposed to join me.

19th April.—Mr. Frederic Grant, Forest Assistant of Prome district, joined my camp to-day bringing with him private letters, newspapers, &c. &c., from my wife and parents which had been waiting for me in the Prome Post Office for some time.

20th April.—Yesterday just as the setting sun was crimsoning the west with ~~flashes~~ of fire, I sounded the familiar note of preparation for starting. The place resounded with the gleeful yells of our peons, who being filled with joy at the prospect of getting “under way” to get

a draught of toddy, for which the district of Pounday is celebrated; became clamorous.

The villages and cultivation throughout the march, were very considerable, but still the appearance of industry was not striking. The soil appeared to be thin, sandy, and far from being fertile. Of cultivation, the most remarkable feature is immense groves of *Cocos nacifera*, and *Borassus flabelliformis*, the last is grown for the manufacture of jogree, and judging from the vast number of these trees, they must produce an extensive article of consumption. I have been informed, by the Burmese of this district, that there are two species of palms, viz. the male and female. The former affording juice for two or three months in the year, while the latter almost throughout the twelve months except in the rainy season. After having accomplished a journey of twelve miles, we halted in a *zayat*, near a large *kyoung*, which gives its name to the locality, the building is embosomed in a small grove of *Ficus cordifolia*, and is further graced by the presence of a few trees of *Tamarindus indica*, *Calophyllum inophyllum* with branches of sweet scented flowers, *Morinda bracteata*, *Anacardium occidentale*, *Sandoricum indicum*, and plantain.

The *zayat* has a dependant and contiguous well of water, serving at once as a place of repose and refreshment to the weary passengers, and for devotion. The union of these objects, I consider extremely felicitous and commendable, and as reflecting credit on Burmese manners and hospitality. Under the shade of the Tamarind trees, numbers of insects that show a bright light at night, were crawling about, probably glow worms (*Lampyridæ*) as answering exactly to Revd. Dr. Mason's description. Regarding them Mr. Moore wrote

" the light

The glow worm hangs out to allure.

Her mate to her green bower at night."

Observing a venerable Phoungyee, seated at the gateway of his monastery, I went towards him and made a salutation; he has been represented by the people of this place, to be of an amiable disposition, and considered a devout religious; yet he has his foible and addicted to *ai-ke-ya*, and has expended much time and money in the idle search of the great secret, which would, it is believed, enable the discoverer to make gold and silver at discretion.

In this day's march, I met with *Xyris indica*; the beautiful and fragrant *Psychotria*; a species of *Morinda* with small flowers with crowded heads; *Mucuna prurius* with its stinging pods; *Eria bracte-*

stems with a fleshy stem and bearing leaves about two inches broad; *Clitoria*, an elegant creeper, with deep blue flowers having graceful slender branches, appeared to spread over trees in all the wild luxuriance of nature. The root of this plant resembles that of red cotton (*Bombax pentandra*) both in its sensible qualities and medicinal properties, and may be used as emetic. I also observed *Ricinus communis*, from the seeds of which the castor oil is obtained, rising seldom than four or five feet. I have been informed by my father that in the Malabar coast, the lower classes of people burn the oil in their lamps and employ it also in healing wounds, and even in exhausted cases of hemorrhage, it has been found to effect a speedy and satisfactory recovery. The process is simply by immersing a pledget of common country cloth in the oil and applying it to the wound. *Anethum graveolens* (of *Umbelliferous tribe*) I noticed in a cultivated state; the seeds called by the Burmese *San'lot*, are always to be met with in all the native shops. The Burmese practitioners make a great use of them, on account of their powerful aromatic odour, an infusion of the seed in warm water, and straining, is said by them to form very grateful refrigerant drinks in febrile diseases.

I spent my time principally within doors, as the heat of the sun prevented me, after I had encamped, from moving out of the shade during the day, without suffering much inconvenience and incurring some risk from the exposure; and the openness of the country here rendered any particular examination of it unnecessary, as its character was perceptible at a single glance.

Just as dinner was announced the Tike-oak (Headman) came to pay me his compliments. I received him and retiring himself from the board he charged his pipe with tobacco; which being lighted, he proceeded to smoke, as we went on eating, performing his fumatory recreation in the most free and easy manner, and all its concomitant evolutions with the most perfect *nonchalance*. In a short time every thing in the Zayat smelt or tasted of tobacco, the apartment was in a mist and the Tike-oak only moved the pipe from his mouth, to ask for *Ayet-pyin-byin*. Lamentable distress! such a liquor was not to be had, in vain were tendered tea, coffee, and sherbet—Beer, however, was the only succedaneum; which was received by the smoker with no very good grace.

21st April.—Scarce had gray twilight brushed his dusky brow we were stirring, as I was desirous of avoiding the oppression of the sun. The one third portion of the plain, over which we marched, the

soil was of a clayey texture of reddish or greyish color, and was mostly covered with a tall and coarse grass and thick groves of palms (*Borassus flabelliformis*) in full foliage. Some of them were entirely in the embraces of the epiphytic species of *Ficus* so much so that the top was seen issuing from the trunk of the latter. It has been alleged by the Burmese that the green pigeons (*Treron bicincta*) after eating the fruit of the *Ficus* they drop the seeds in the axils of the leaves of the palmyra, and on germinating they grow and extend their descending parts.

In addition to a peculiarity of aspect more easily felt than described, the timber trees were generally thinly scattered, seldom large or very small. They were chiefly of *Dipterocarpus alatus*, *Strichnos Nux Vomica*, *Mangifera indica*, *Zizyphus jujuba*, *Sterculia fetida*, *Artocarpus integrifolius*, *Picardia sapota*, and *Photinia serratifolia*. These have an appearance and configuration appropriate to the soil they inhabit, and, in the proper latitudes, it is favorable to the growth of rice, maize and tobacco. The plain has a gentle rise here and there only a few feet higher than the land around it. These little detached elevations—for they are not hills,—appeared to be the favorable habitat of the trees already described, but grass and weeds were the occupants in the low land. It may not be out of place to mention here that I observed the soil of the plain for the most part to be alluvial to a greater or less depth, though, on some of the highest points, there were little; it may, however be remarked that the lower the ground the deeper the alluvium.

I was delighted in witnessing, whilst on the march, a most splendid scene as I turned my eyes upon the spangled sky. Jupiter before he melted away into the light of heaven, rested like a brilliant gem upon the brow of Taurus, furnishing a beautiful appendage to the latter, as he reclined in dignity upon his ethereal couch. At day break we espied a village a head of us, and the guide assured me to be Mee-gyee-yoah of Eingmah district. We were yet at least three miles from it, when some of my party sallied forth, with an unusual haste, to get to it. They felt confident it was about a mile off, but finding the distance so much greater than they had anticipated, they lagged behind in a zayat and soon rejoined me as I came up to them. The optical illusions—occasioned, I believe, by the rarified and transparent atmosphere of the plain—are truly remarkable, affording another exemplification of its purity. A person would fancy himself looking through a spy glass, for objects frequently appear at

scarce one third of their real distance—frequently much magnified, so that a single hut with a grove of trees often appear so increased in bulk that they would be mistaken, by the inexperienced eye, for a thriving village. I believe this illusion is occasioned by gaseous vapours rising from the ground, while the beaming rays of the sun are darting upon it.

Our movement, performed fasting, and unsheltered from the heat of a scorching sun, brought us to Pounday—after a journey of twenty five miles—wearied and faint with hunger; and as we approached it, I saw several magnificent *Capparis*, charged with large white flowers; they are great favorites with the natives, and are gathered by the boys and girls of the district to ornament themselves. The following did not escape my observation. The ever beautiful *Mimcy-lon ramiflorum* with small polished dark greenish leaves and numerous blue and purple flowers, appeared through the foliage, clustering round the naked branches. Also a species of *Symplocos* an erect growing tree, with large leaves of a thick and firm texture.

Under the delicious shade of an umbrageous mango tree, close to a Kyoung, I sat to repose after the fatigues upon the brilliant carpet of nature and allayed the pain of the moment by copious draughts of water. I enquired for some plantains, only a bunch was to be found in the Kyoung and was glad to lay hold of it where with to stay the cravings of my appetite. Seeing no sign of my camp coming in at the hour of three in the evening, I strolled out to look for quarters, and to my dismay, I found all the Zayats occupied by Phoungyees, belonging to other districts, who had come here to celebrate the feast of *Phoungyeechyan*. I required the head religious “to take a rule to show cause” why fatigued strangers, should not be accommodated as well as a company of his brethern. This was followed by a vehement philippic on the part of the Phoungyee, by which I soon discovered that I was “nonsuited with costs.”

22nd April, and two following days, we lay encamped. Pounday has great advantages in a large extent of soil, and in an abundant supply of water during the rains, which can be turned with facility upon the land. Favoured by climate, its capability of yielding a variety of produce is very great. The good people who hold it are not, however, enterprising or experimental agriculturist. There are many groves of mangoe trees scattered over the plain and regarded—perhaps justly—in this place as evidences of fertility. The reason may be, that they are mere indications of water, it being observed, that with-

out that desideratum being at hand, they cannot thrive, and for the same reason the natives prefer sinking wells under them. Cattle are plentiful in Pounday, and in all kinds of rural wealth, I may say, ~~the~~ inhabitants may be pronounced rich. During my stay here, I more than once passed through the bazar. I had every reason to admire the abundance of almost all kinds of provisions, particularly of fruits, and was much struck with the varieties of costume worn by the individuals I met, plainly showing how great was the influx of strangers to this place. Beef, while very good, is not perhaps so cheap as at Rangoon. Fuel is one of the articles considered dear, as it is brought from a distance. The bazar also abounds with foreign and native produce, British manufactures are freely met with, and the Burmese are wont to remark, that if Pounday were seated on the banks of the Irrawadie, gold might be gathered by hand fulls.

25th April. We marched to Tapoon. A sunny morning in the plain again, *Couleur de rose!* No fog, no flies, no currants of air as to demand warm cloths. A more uninteresting country that we traversed can scarcely be conceived. Nothing was to be seen but a flat level plain covered with scanty herbage; and as for trees, it would have been no difficult matter to have counted all that came within the sweep of our vision. Their general absence, at first sight, gave an appearance of barrenness. A few groups and avenues of fine trees decorated the villages, the line of which they followed with so much regularity, as to convey the impression of their having been planted for the express purpose of shade and ornament. They consisted of *Elæodendron integrifolia*, *Careya arborea*, a species of *Calophyllum*, *Inga bigemina*, *Odina Wodier*, *Dalbergia latifolia*, and *Averrhoa Carambola*. A small teak forest—containing about one thousand trees from two to five feet in girth about Tapoon—was examined by us. The generality of the trees looked stunted, or deformed, on account of their expanded crown and lateral branches, and although they would yield short logs, crooks, and bends, I consider the timber, when cut down and tested, would turn out to be of a spongy and inferior quality; and my reason for supposing it to be so, is because the trees here inhabit a some what low and damp spot. I am the more convinced in this when it is generally known that Maulmain Teak is much inferior in strength and compactness to that of Malabar. This appears to have arisen simply from the fact, that the Malabar specimens were from hill teak, indeed Dr. Falconer says in his report on the Tenasserim Teak forests that “its favorite habi-

tation on the Malabar coast is on the side of the hills." While, on the other hand, the Maulmain Teak is confined to more easy localities, on the banks of the choungs. From the above, it will be perceived that the teak tree will grow almost in any soil where water does not lodge, but soil will effect its growth and quality of the timber.

26th April.—After a most flat, dull, and unprofitable march, we reached Yaigyeen. The Monotony of the march was broken only by the road, as it neared Yaigyeen, winding through groves of mangoe trees, many of which were found growing on slight and detached eminences. It is difficult for those, who have not travelled in this month under a burning sun, to appreciate the value of these trees. Independent of their delicious fruit, they afford a shelter and a shade such as no art could supply, and they usually also harbor a well. In this journey, I could not avoid being impressed with a favourable opinion of the peasantry. Everywhere they seemed to be a contented, orderly, and hospitable race. Their fertile and productive soil affording them, at slight labor, the simple necessities of life in abundance.

27th April.—Encamped.

Last night as the moon became obscure, flashes of lightning near the horizon became vivid, and flickered above our heads, now and then brightening and casting an unnatural hue over the surrounding scenery, whilst the thunder from a low rumble had increased to a majestic peal that reverberated through the heavens. A few potentous drops caused my friend Mr. Grant, Forest Assistant of Prome district, and myself, to hasten to our tent, and we had no sooner reached it then the clouds opened, as it were, their sluice gates, and poured down a torrent of rain which lasted till 2 o'clock this morning. Our camp presents to-day a cheerless appearance. Some of our hungry peons were seen vainly endeavouring to puff into a blaze some half ignited sticks which soon smouldered by their dampness, and emitted forth a thick smoke that slowly ascended and curled over the tent before it was dissipated. With such things staring before my eyes, I at once saw the impracticability of getting something cooked for breakfast, a kettle of water being heated, with a laborious, mouth-blowing, I was obliged to content myself with a piece of biscuit and a cup of tea to break my fast.

Last night's storm, however, ushered in this morning a cloudless sky, whose clear azure contrasted beautifully with the verdant turf to which the late rain had imparted an unusual brightness; and as soon as the sun made his appearance, the boys and girls were

seen busily collecting mangoe fruits strewed by the wind all over the ground. Crowds of people were also sallying forth to the scene of their labours, as well as Military Officers emerging from their homes to enjoy a constitutional walk. The scene was altogether lively and animated.

28th and 29th April.—Took up my quarters in the Post Office to enable me to get my passage for Rangoon by the first steamer proceeding downwards.

Yaigyeen is a fine little town. It is subject to the annual inundations, and the water leaving a deposit on it, its soil is extremely rich. In some places it yields, as I have been informed, five hundred baskets of paddy per yoke, while others return less than one third of that quantity.

The country all around appeared to be quiet. The series of depredations, committed at one time in this district, are not easily to be forgotten. Happily now these are less heard of. Peace reigns here; and an augmentation of civilisation has carried us into an ocean of blessing where the power reigns, under which all disputations are determined by gentler means than the annihilation and devastation of inimical interests. With what feelings of gratitude and happiness we should view such consummated tranquillity, I leave those to testify who have plodded and followed the footsteps of mankind from their origin, and thence downwards to their end.

In days gone by, let us hope for ever, a different feeling prevailed; the *dah*, musket, &c, and the strong arm too often, by their strength, overcame the powerless innocent. Might then constituted right; as the old adage expresses it.

“ That they should take who have the power.
And they should keep who can.”

So were the customs moulded in those times I speak of.

3rd May.—I boarded the *Indus* on the 30th Ultimo and arrived this day at Rangoon. After an absence of two months and eighteen days.

It would be idle for me to estimate the wealth with which the mind may be endowed by forest excursions. Nature, as if to compensate to herself for the deficiencies in the fine arts moulded by the hand of Man, has lavished upon every object—both animate and inanimate—a profusion of beauty and brightness. In one place we find she has heightened the grandeur of the feature of the country

by bestowing on it primeval forests, mountains, chouns, and small murmuring streams which gush down unseen through fissures of the lofty rock.

In the mountains one would observe teak trees and their associates of prodigious height and strength; thickets of the different species of the *Bambusa* which almost exclude all other vegetation from beneath their shade, and carpet the soil with their own withered leaves; *Clerodendron* with their panicles of flowers gleaming through the deep-green and highly varnished foliage; the magnificent *Barringtonia* with a lovely scarlet flower; *Nauclea Cudamba* dressed with fragrant blossoms; and while floating curtains of *Clitoria ternatea*, *Passiflora foetida* and other climbers clamber over trees; the Orchids too of the species of *Dendrobium*, *Bolbophyllum*, *Habenaria* &c, weave themselves in all the graceful forms imaginable. Indeed, nothing is wanting to complete one wide and continuous landscape of surpassing beauty and magnificence.

Of the animate we have the butterflies of the several tribes of *Nymphalidæ*; *Buprestis* of a brilliant color and graceful form; flocks of several species of *Psittacus* which make the forests vocal; many kinds of *Nectarinia* are rife among flowers, and the latter are in themselves various and odorous.

The knowledge of such scenery, achieved by a forest excursion, is all clear, unalloyed, and priceless gain, for it not only stores the chamber of our memory with the pictures which can be stretched at pleasure, but nourishes the power of discerning all other kindred scenes, and redoubles the charm of those we may afterwards enjoy at home.

NATURAL PRODUCTIONS

OF

PEGU.

TIMBER TREES.

The Teak tree belongs to the family of plants *Verbenaceæ* and is entitled *Tectona grandis*. It is found on the slopes of the Panlong mountains and Yomah range. The wood has been, as is well known, employed for ship building, and all other purposes where a strong and durable material is required. The timber is not subject to the touch of the white ants or teredo.

2. It is of great importance, however, to enter into some details regarding this valuable timber.

3. It appears to me that no definite and satisfactory statistical report regarding the number of teak trees, their relative value, and the influence upon commerce, which might be realised by their exportation, or their being brought into market, existed prior to 1836, until when, all knowledge of the timber resources of the country was little more than conjectural, some survey of the vast forests of the interior became desirable, or at least some information regarding their value. Mr. Crawford, who had then resided at Rangoon as Civil Commissioner on the part of the British Government, and having received instructions in June of the same year to proceed on an embassy to the Court of Ava; he, with characteristic zeal and ability, forcibly represented to his masters such particulars as he could gather, respecting the timber trade from individual observation and official returns.

4. The teak forests of Pegu, there can be no doubt, are of the greatest importance to the commerce of the Province. Mr. Crawford, in alluding to the subject, writes "the site of Rangoon has many

" advantages for ship building. At neap there is a rise and fall of
 " the tide of about eighteen feet; and at spring from twenty five to
 " thirty. The distance of the principal teak forests is at the same
 " ~~the~~ comparatively inconsiderable, and there is a water conveyance
 " for the timber nearly the whole way. Ship building has in fact
 " been conducted at Rangoon ever since the year 1786, and in
 " the thirty eight years which preceded our capture of it, there had
 " been built one hundred and eleven square rigged vessels of
 " European construction, the total burthen of which amounted to
 " thirty five thousand tons. Several of these were of from eight
 " hundred to one thousand tons burthen."

5. This writer has not mentioned the large quantity of teak expended on private houses, and in the erection of Kyongs and Zayats, which, previous to our occupation of Pegu, were very numerous throughout the country. Indeed the purchase of ground for the erection of such religious buildings, invested the speculator with similar honors to those obtained by gentlemen who purchased crown confiscations in the days of King James the First.

6. In allusion to the annual exportation of the valuable teak timber brought down from the Pegu forests, the same writer declares that " it is equal to seven thousand full sized trees; Calcutta is the
 " principal mart, and the quantity imported in 1823-4 was valued
 " in the custom house books at 2,61,176 Rupees."

7. With regard to the above quoted statement, I may be permitted to remark that the Burmese Governors of Rangoon were obviously interested in making the very lowest estimate of their Commercial returns of teak exportation. But there is no doubt the timber imported to Calcutta has been correctly given by Mr. Crawford. The reason that I assign for this is, that the Governors and Collectors in Pegu, held offices under very uncertain tenures; it was natural that they should endeavor to secure as large a retiring fund as they could, by any practicable means, accumulate, and hence the interest which they had in making their export returns—when their opportunities were so plentiful—fall far short of the actual quantity exported. Had they kept correct returns, the system pursued by the Sovereign, in respect to custom's exactions, would have fallen heavily upon their devoted heads; for had one year's return been an honest account of the quantity of teak shipped or expended, very large large contributions from them individually would certainly have been levied. Such material, therefore, as was supplied

to Mr. Crawford, I submit (however valuable in some respects) must be considered as somewhat imperfect data.

8. In March 1837, Mr. Blundell called the attention of the Government of India to the advisability of levying duty upon Pegu teak to protect the interests of the timber trade of the Tenasserim Provinces, the importation of which staple was very extensive from Rangoon, and the sale of which in fact was, in the Bengal market, much in excess of original demand.

9. In 1851, Dr. Falconer reported "the teak of Irrawadie has for a long period been largely exported from Rangoon, under the name of Pegu teak, and the forests in Burmah are still so productive that the timber at the present day constitutes the most important article of the commerce of that port."

10. The glory of the Rangoon timber market has, however, been materially darkened since our occupation. The Tenasserim Provinces now almost wholly supply the Calcutta and English markets, in consequence of the policy pursued by Government, which is apparently dictated by the fear that our forests will become exhausted in the progress of time, if stringent measures are not adopted for their preservation. The fallacy of this view has been exposed by the lapse of time, and there can be little doubt but that if, what I may be permitted to call, so mistaken a policy is persisted in, it will occasion the ruin of Rangoon as a timber exporting and ship building port.

11. I have another objectionable policy to direct attention to, namely, that the Government sold ground for timber and ship building yards to merchants, at most exorbitant upset prices, which were generally advanced upon by bidders, upon the impression that they would be able to use such allotments for the ostensible purposes for which they supposed they bought them. According to existing rules, however, the Superintendent brings down teak timber himself and sells, by public auction, on account of Government, but the quantity annually arriving at Rangoon, under such an arrangement, is so small and generally of such inferior quality that Merchants have no inducement to use their ground for the purposes originally intended by them. They are obliged to depend for supplies of converted teak, upon the Maulmain market, from which large quantities are constantly exported to Rangoon.

12. In a letter dated 3rd August 1855, No. 2753, the Secretary to the Government of India conveyed to the Commissioner of

Pegu the opinion of the Supreme Council, that neither himself nor Dr. McClelland saw "the full force of the principle which was laid down by Government at the annexation as the ruling principle of the whole subject, namely, that all teak timber should be retained as state property." This was considered the most important element:—the spirit of Monopoly ruled, and private parties were directed not to "enter the forests, or to have any concern in felling the wood or bringing it away." Such restrictions upon the most important ingredient of commerce, cannot be otherwise than detrimental to public welfare. For about a century Pegu has afforded inexhaustible supplies of teak, not only to Bengal, but to more remote nations to which Nature has denied so much amongst her countless treasures.

13. The Grecians and many other nations, who delighted in warfare when occasion required them to enlist under the "banners of Mars," nevertheless cultivated the arts of Peace, and sought national wealth and prosperity, by fostering the speculations of Commerce; and they were not disappointed; but then there were no monopolies; no false systems encouraged which are so inimical to trade. History points to Nations which have fallen through the maintenance of monopolies and have become disgraced and degraded by endeavoring to sustain so mistaken a principle. The false and flimsy fabrics arising upon long, perpetuated, and increasing abuses, form but tottering and weak edifices which eventually are sure to fall, involving all who seek shelter beneath them. The Genoese carried on by the current of rapacity, maintained that they were the only legitimate sons of Neptune, and considered themselves invested with exclusive marine privileges. They were by no means slow in endeavoring to assert their usurped powers, which they did by limiting the Greeks to the simple navigation of the Danube. The Venetians carried the same spirit to even a greater extent than the Genoese. They exerted their best to prevent all others from participating in their commercial benefits; but their grasping disposition proved fatal to their Republic, which gradually, but surely, sunk into obscurity and dwindled into insignificance.

14. From what has been said, it is obvious that monopoly is as destructive to the health of the Commercial as the far-famed *Upas* is said to be uncongenial to the developement of the vegetable world. I may perhaps be excused for quoting Dr. Smith's opinion on the subject. "The monopoly of the colony trade," says the worthy Doctor, "like all the other mean and malignant expedients of the

“mercantile systems, depress the industry of all other countries, but chiefly that of the colonies, without in the least increasing, but on the contrary diminishing that of the country in whose favor it is established.”

15. I confess I am unable to add illustration to arguments so sound, and it might be considered superfluous to remark upon them. They certainly embrace the gist and substance of the whole reasoning, commend themselves to every enlightened understanding; and, in so far as reasoning can satisfy a rational creature, set the question as to the general principle involved, at least the teak monopoly in Pegu, completely at rest.

16. I shall now, as clearly as possible, explain the system upon which, in my opinion, the Pegu Forests should be worked.

1st. I propose that the forests be classed under a survey and thrown open under free licenses to capitalists and men of standing and character, to cut timber, simply under a restriction against felling undersized trees.

2nd. An uniform duty of four Rupees on all teak logs, whether large or small, which would discourage the felling of unmarkatable timber; because in that case it would be manifestly opposed to the interests of the Foresters to bring down undersized, or inferior timber, for which they would have to pay as heavy an amount of duty as for fullsized and merchantable logs.

3rd. Crooks, the produce of branches, be passed without reference to girth at the following rates:—

	Rs.	As.	P.
Stem pieces,.....	0	9	0.
Ship crooks,.....	0	4	0.
Boat ditto,.....	0	1	0.
Small ditto,.....	0	0	6.

4th. The retention of a portion of the forests, in the hands of Government, for Military and Naval purposes.

17. With regard to the first of these proposals, I consider that the Grants should be legally registered and systematically granted, and the boundaries should be distinctly and unmistakably defined. The propensity to litigation, which the people of all Oriental nations innately encourage, is as apparent in the people of Burmah as it is in the character of the millions of India; and much mischief is not unfrequently occasioned, owing to such uncertainties as I have above hinted at.

18. In urging the question of throwing open the forests, it would, in my opinion, be obviously advantageous to the Government as well as the holders of forest tracts, that the Grants of the latter should be permanent. It must be clear that the interest of Government will be best furthered by the market being constantly stocked with the finest timber, without injury to the forests, or detriment to their future productiveness, as well as by the recovery of duty upon the same. Again the interest of proprietors would be to insure a proper attention to render their forests perpetual so as to secure permanent supplies of timber from them without endangering their exhaustion, or total destruction, and rendering them valuable transferable property. If they are not secured in the manner indicated, what motive have they to devote their skill and capital to the rearing or preservation of a succession of timber trees, which would come to maturity only after a number of years, other than such a compulsory one as might attach to the exaction of a special condition, the compliance with which they might slight or avoid, and yet hope to ward off stipulated penalties, sheltering themselves under a variety of excuses which might appear fair and reasonable or at least specious? It may fairly be inferred that if the forests of the Tenasserim Provinces had been first worked on this principle—and subsequently recommended by

Mr. Colvin—* they would not have been, to so large an extent, exhausted; but instead of this the heads of the Department framed rules, profuse in petty details, instructing merchants and dealers how to conduct the trivial *minutiae* of their operations, even to matters regarding ropes, trucks, carts &c. and prescribing little meddling instructions, to be observed under pain of “the locality wherein such breach may have been effected will be at once resumed by Government;” and this penalty is to be enforced throughout vast, inaccessible and uninhabited tracts, adapted by nature for the shelter of wild animals with which they abound:—but in the nature of things such a system could not be maintained in its integrity. The rules laid down were scarcely ever observed, their infraction could not be checked, and the penalties instituted could not be enforced.

19. On the other hand the measures adopted with reference to the grantees, have been of a nature to encourage waste and improvidence rather than the reverse. *Letm hats* were given to parties to fell timber on certain localities revocable at will. Some again received Grants of undefined and disputed tracts for no specified period,

the time being wholly dependant on the caprice of the existing authorities. The Superintendent of Forests, too, appeared to take pains to impress upon the minds of the grantees that the nature of the tenures being at will, allows of their immediate resumption, and indeed they were practically taught that such resumption might, on occasions, be executed very suddenly and summarily.

20. It cannot, therefore, be wondered at, that the grantees under such circumstances, neglected the interests of Government in the teak forests—that they should cut down whatever might most immediately suit their purpose, they being obliged by their position to make the most they could in the shortest possible time, considering the precarious and uncertain nature of their tenure.

21. From the retrospective view I have taken of the forest administration of Maulmain, it shows how necessary it is for Government not to interfere, beyond prohibiting the destruction of half grown trees, with so important an ingredient of Commerce; and, the labyrinth of confusion which, at one time prevailed at Maulmain, was owing to the circumstance of such interference, both directly and indirectly, to the obstruction of all other important matters effecting the welfare of the people and the general interests of the Province.

22. Government, I think, would derive a great advantage besides, in throwing open the forests, a measure which would relieve them from a large amount of responsibility, and save them from considerable expense. The Timber Revenue could be collected by the Deputy Commissioners, as in Maulmain, and the Office of Superintendent of Forests and his present Establishment might be abolished as altogether useless. In his place a qualified Overseer might be appointed to look after Government reserved forests, to avoid injury to the teak nurseries and to prevent waste. A proper person might, I imagine, be obtained upon a comparatively small salary considering that his duties will not be particularly onerous or laborious.

23. I think it would be sufficient—after making the tenure permanent—to specify a certain gravity within which no undersized trees should be “vexed by the axe,” or brought into market, under pain of confiscation. This would prove effectual in preventing the destruction of young trees, and would save the forests from becoming exhausted. This rule could be enforced without any direct supervision of the forests, as any infringement of it could be detected by the Collector of timber duties on the rafts arriv-

AN UNIFORM
DUTY ON ALL LOGS.

ing at any of the Timber Revenue stations. Indeed, such are the intricacies of the teak forests and their great extent, "no degree of local vigilance," says Dr. McClelland, or "superintendence, no extent of local establishment confined to the interior of the forests" would be sufficient to protect them from extensive injury on every side or secure a proper or profitable administration of their resources "without the aid of a well-devised timber revenue system as a part of the general administration of the province."

The inference to be drawn from the above quoted opinion of Dr. McClelland, is, that it would be impossible to protect the forests from waste and ruin other than the imposition of a duty upon teak timber, which would prohibit the destruction of all undersized trees, and render them liable to inspection at the Revenue stations prior to being passed. It follows, therefore, (taking Dr. McClelland's dicta as conclusive argument), that my opinion expressed in para 22 relative to the abolition of the Forest Department, is both feasible and founded upon just grounds. *

24. These might be admitted at Maulmain rates, if they shall be the produce of branches, and undersized timber be not sacrificed for them.

CROOKS.

25. It must be apparent that certain tracts of forest lands should be reserved for such public works, as RESERVED FORESTS. are essential for the stability of the Government, and by a careful management be enabled to reserve for itself resources independent of the market, placing them under the management of a qualified Overseer, so as to afford a constant supply of teak and other valuable descriptions of timber. Setting aside all economical considerations, the retention, for Government purposes, of a number of forests would have a beneficial effect

* As a corroborative illustration of this point, the following extract is appended from an article entitled, "The Forests of Pegu," from the *Rangoon Chronicle and Pegu Gazette* of the 6th February 1856 :—

"Captain (then) Tremenhere we know, made one excursion, and one only, to the mere borders of the *Attaran* and *Thoungyeen* Forests, during an incumbency, as Superintendent of Forests, of some two years. Captain Lattor made two excursions and penetrated further into the Forests than his predecessor, acknowledging after doing so, the impracticability of attempting to preserve or conserve, the Teak trees by nurseries which had signally failed under his predecessor, and finally had the candour to recommend to the Commissioner, Mr. Colvin, the entire abolition of the sinecure appointment which he then filled."

as regards the interests of the grantees, who discovering the estimation in which they are held, would be particularly careful, considering the example before them, to secure the due preservation of their forests and to protect and enhance the intrinsic value of their own property.

26. At any rate, I think it would be better for Government to get its supplies in open market, that is, either by tender or contract, which it can always get to any extent and of the best quality, with respectable merchants of the Province. The Government would do well to adopt this measure which entails the least interference in or connexion with the trade.

27. It is a practice with political calculators to consider a great

proportion of births among the people as being

CONCLUSION.

one of the surest signs of the country being in a flourishing condition. Under such circum-

stances there can be no doubt but that the abundant annual supply of seedlings in our forests throughout the Province—rising in large quantity either to renew them or to keep up the supply—cannot be looked upon in any other light, but as a favorable symptom indicating prosperity. Some further conjecture might be formed upon this point, if we take into consideration the established fact that teak bears seeds in the eighth year of its growth when it has attained the height of twenty five feet and upwards, and comes to maturity in its fiftieth year. It is not to be inferred from this that being in its prime, it does not propagate the species. This is far from being the case. The susceptibility of the germination of the seeds is not to be questioned, as I have frequently in all my excursions, come across adult trees surrounded with a great number of their representatives. Regarding the creative energy of full grown, or half grown trees, I have the testimony of Dr. Falconer favoring my view. In his Report to Government, dated, 23rd July 1851, he expressed his deliberate opinion that the conclusion, arrived at by the late Captain Latter, had arisen from partial or erroneous observation, namely, that the seeds of the adult tree were abortive and only when it has reached its old age or decadence that it scatters its offspring. "But this view," writes Dr. Falconer, "is entirely at variance with the observations which have been made by others, whether in the Tenasserim Provinces, on the Malabar coast, or elsewhere. The oldest teak trees in the Botanic Garden are not more than 63 years old, yet they have fruited freely for the last

" 25 or 30 years, and yielded good seed. During my tour, I gathered seed from the trees on the Attaran, without selection, which germinated freely during the months of March and April."

28. It would be unnecessary to multiply illustrations in order to prove the fact that the number of teak has increased, and is still increasing in proportion to the number of trees in the forests.

The Returns of Dr McClelland may be taken as a sort of a basis of our resources. As regards the fidelity of these documents, I leave that Officer to speak for himself. "With re-

gard to the Returns of the quantity of timber contained in the Forests, and the degree of confidence to be placed in their accuracy, I may state, that it has always been a rule with me to visit each Forest, before calling for a Return of the timber it contained. This gave me an opportunity, not only of forming my opinion of the value of the Forest but also of selecting the most eligible person from amongst the nearest inhabitants of the place to fill the situation of Goung-gwai or local agent. This appointment has always been made after sufficient experience, on the spot, of the zeal and local information of the person selected, together with the most satisfactory assurance, that he is in no way connected with timber, or any other business that could interfere with the discharge of his duties. A written appointment is then made out, in which all the duties of a Goung-gwai are explained in detail, and amongst others, the method to be followed in making out an inventory, for the accuracy of which the Goung-gwai holds himself responsible. Instances of dishonesty on the part of Goung-gwais are very rare, and quite unknown, where due precaution is taken in their selection. Of twenty seven Goung-gwais employed one is a Kareen, two Yabanes, and twenty four Burmans."

"The Goung-gwai, with the natural instinct of a Burman for finding out Teak timber, added to a local knowledge of his native Forests, has no difficulty, in the course of a few weeks, in ascertaining the place of every tree above a certain size within his circle, a task which, to a stranger, would be nearly impossible."

The Southern Forests—I mean those situated on the feeders of the Lhinc, Phoungyee, and Pegu or Zamayee—contain 149,647 standing green teak trees of eighteen inches in girth and upwards. From these forests 10,000 logs might be annually taken without detriment.

In the Northern Forests, severally called by the Burmese, Bawnee, Tounghoo, Promé and Tharawadie—there are.

6 feet and upwards in girth.....	65,530
5 do. do. do.....	76,980.
4 do. 6 inches do. do.....	170,112
1 do. do. do. do.....	208,280

Total.....520,917 tr.

Altogether without injuring these forests 50,600 first class trees may be annually brought away.

Thus the teak forests of Pegu Province—exclusive of those lying on the west of the Irrawadie, on the spurs of the Arracan Mountains which we have not yet visited—ought to afford a yearly supply of sixty thousand logs without exhaustion. I make this calculation as the number of full sized trees removed will be less than the undersized coming to maturity.

TIMBER TREES UNIVERSALLY MET WITH THROUGHOUT THE FORESTS OF PEGU.

The woods of the following trees differ much in strength, hardness, durability, and beauty, and in general may be employed for objects of ship building, furniture, ornament, military store house building and utensils, spars for vessels, and such as are peculiarly fitted for planks.

Ingazyllocarpa 1, and *I. bigemina*. 2, they are commonly known as Iron wood and belong to the *Acacia* tribe.

1. PYINKADOE. . . The trees are very large and the timber they produce is not inferior to teak or oak in point of strength, and durability, but does not saw kindly.
2. TENYIN.

MAIZALEE.

Cassia Sumatrana. It possesses all the good qualities of the above, but of less specific gravity.

Pterospermum aceroides and *P. subacerifolium*. They are tall straight trees something like *Melanorrhæa usitata*, with a dark brown wood.

BANBWAT.

Careya arborea. The tree is distinguishable by its arboreous branches, and furnishes a hard and durable wood.

Pentaptera. A genus of trees consisting of two species, entitled
 * HTOUK-KYAN. *arjuana** and *glabra*†. They are of very fast
 † QUNG-DOANE. growth of immense height and girth; all afford
 useful timber, and not liable to the attacks
 of teredo.

Lagerstræmia regina. This is the red Jarool of Bengal. It is
 considered by the natives the best after teak.
 PYINMAH. To this species may be added a small sized
 tree known as *Khamoungpyaw* to the Burmese.

Elæodendron integrifolia. It is a close grained valuable white
 wood. I have examined it very carefully, and can safely say, that it
 possesses all the power of resisting the action of water. The tree
 grows to a very large size.

Conocarpus robustus. I find this wood, after a careful study, pos-
 sesses also all the good qualities and homogenous of the *Elæodendron*.

Melicoca trijuga. This is a noble tree; timber light brown, heavy,
 and compact. The natives employ it for mor-
 tars, pestles, oilmills, ploughs, handspikes,
 Joe. and posts.

Shorea robusta. It is more familiarly known as Saul and belongs
 to the family of the *Dipterocarpaceæ*. The Bur-
 mese name for it is *Engyeen*. Gaudama, ac-
 cording to Revd. Dr. Mason's account, is said
 to have died in a grove of these trees. I believe the *Shorea* is the most
 valuable and extensively employed of all timber trees in Bengal. It is
 heavy, light brown, and close grained wood. It has been alleged by
 some scientific gentlemen, that in point of tenacity and strength it is
 considerably superior to the best teak. In solidity it is at least equal
 to the Elm, but has not its pliancy, nor is it quite so apt to split;
 its grain usually runs tolerably even.

Besides the above there are three kinds of white wood valuable
 for close grain, strength, and durability; they inhabit certain forests in
 a great mass, and in others are widely dispersed.

1. *Walsura piscidia*.
2. *Sibia Sp. (Glomerata)*.
3. *Connarus speciosa*.

Numbers 1 and 2 appear almost the prevailing trees in all the
 forests throughout the Province, but strangely shun the Tharawadi
 district. While number 3 is common there as well as in the Pegu or
 Zamayoo and Tounghoo Forests.

All the above timbers, I have described, from first to last, may be

considered—without exception—excellent, especially for ship building, as they are strong and not liable to decay from exposure to the weather, and, besides, they possess all the characters of standing well in water, and of resisting the ravages of the various insects to which woods of all kinds are more or less exposed. In connection with the various collections of them, attention must be paid that the trees selected, should be properly girdled and allowed to stand for two years at least, until thoroughly desiccated. Unless this is done, the timbers are somewhat apt to shrink and decay. What I mean by girdling is, to cut through the sap all around the tree about three feet above the ground. This process should be done before the rains, the sap being then low.

CONTINUATION OF TIMBER TREES UNIVERSALLY MET
WITH THROUGHOUT THE FORESTS OF PEGU.

KYA-ZOO.

Terminalia chebula. A large tree, hard wood of a red colour.

THAN-THEET.

Bignonia. I have come across three undescribed species, I should think all would furnish useful timbers for house building.

Dalbergia. It is a heavy close-grained black wood; after being properly seasoned, it rarely cracks, or warps:

YIN-DIKE.

nor is it subject to destruction by white ants.

The domestic uses are chiefly confined in Bengal to the construction of chairs, tables, &c. for all of which purposes it is peculiarly appropriate, with the exception of its being very ponderous. This objection is, however, counterbalanced by its great durability. It may be also employed for frames, ribs, or knees of vessels for such parts as require the grain to follow some particular curve. The trees in our forests do not attain a large size, and seldom show more than three feet in girth.

NGA-BAI.

Odina wodier. I have often seen it, especially in the Tharawadie and Prome districts, used for house posts.

Castanea indica or Indian Oak. Large tree, excellent, hard, and tough timber. I have never observed the Bur-

THIT-KHYA.

mese in Pegu make any use of it, although it is said that in Nepal it is extensively employ-

ed for large mortars and pestles for grinding corn.

- Acacia Sirissa* and *A. Stipulata* are large straight trees, "and from the character of the genus," says Revd. Dr. Mason, "would no doubt furnish valuable timber."
- SEET. *Bombax pentandra* and *B. heterophylla*. These afford light fine wood, and may be used for frames of lacquered ware.
- LET-PAN. *Grewia Spectabilis*, *G. Hookerii* and *G. floribunda*. A hard close-grained durable white wood, not attacked by insects.
- Butea frondosa* 1. and *B. superba* 2. The former is a magnificent tree, and the latter a large creeper.
1. POUK. Both afford open, soft, and rough wood; it is generally used in Bengal for common furniture.
2. POUK-NWAY.
- *Microcena spectabilis*. A good useful wood for common carpentry. I believe it is subject to the attacks of insects, as the sample of it I brought from the forest, and which is still with me, has been fearfully destroyed by ants.
- Adenanthera paronia*. It has been called YWAI-GYEE. by some as the Iron wood of Ceylon. The timber is red and very compact.
- Diospyros melanoxylon*. This is the black ebon, and may be used for turnery work, and for inlaying.
- OUK-CHIN-ZA.
- Strichnos nux vomica*. A small tree, but the wood is very strong.
- KHA-BOUNG.

Buchanania augustifolia and *B. latifolia*. They belong to the family of plants *Anacardiaceæ*. The timber is strong and very valuable, and may be used in house and boat-buildings.

Antidesma paniculata. A middle sized tree; wood not used by the Burmese. On account of its compactness, it may be employed for handles. I have used it for my *momities* and found it to answer very well.

TIMBER TREES MOST PREVALENT IN PEGU OR ZAMAYEE AND TOUNGHOO FORESTS.

- PAN-NA-THA. *Laurus* (I believe *nitida*) a small tree with an erect stem, used in house carpentry.

Gmelina arborea. It is a weak timber and suitable to all sorts of light work in which shrinkage is to be avoided, such as picture frames, organ pipes, and boards for preserving dry plants.

Ancestralobus mallis and *A. carnea*. A fine grained small sized dark brown wood. The foresters make their *tsouns* and pestles out of this wood.

Kydia calycina. Very strong white wood.

Xanthoxylon budringa. A hard compact TOWN-TIAN-GYEE. dark brown wood. The plant is found as a large, bushy, and thorny shrub or small tree.

Mangifera attenuata. An indestructable strong heavy dark brown wood.

Eugenia a genus of trees consisting of three species, *myrtifolia*, *pulehella*, and *jambolana*. All produce very hard wood and might be applied for cabinet work and carving images. Judging of the several old posts shown to me whilst in Kyoukpyinda village, in Pegu or Zama-yee district, which were of these species, I consider they have the character of decaying if used in the ground; and from a subsequent investigation and trial in Tounghoo district (where I found them plentiful in Kamaisai village) I discovered that they were shaky and liable to the attacks of insects:

Cordia Myca. A moderately hard fine close grained, rather light wood, and like the *Nauclea* is evidently adapted for inferior work, and where durability is not required.

Hibiscus macrophylla. A middle sized tree said to be much used in Tavoy for common building purposes.

Exceccaria agallocha. Timber large compact and very hard.

Aglai spectabilis. A large tree, the timber might be applied to a great variety of uses, and especially is excellent for masts and spars.

Melanorrhæa usitata and *M. glabra*. The specific gravity of this wood is perhaps greater than any other forest tree except *Inga* and *Pterocarpus*. It is very compact and heavy. The timber is not attacked by insects.

Eriolæna tilifolia. A very large tree and produces an excellent tough white wood. It has never been tried for gun carriages, and I do not doubt that it would be very well adapted for them.

Semecarpus Anacardium. It is well known to the Burmese as *Chai-bin*. From the quantity of the dried nuts that find their way into the bazars, they must be very much in demand. I have not seen the timber used, although it is suitable for posts, rafters, beams, &c.

Bauhinia parviflora and *B. brachycarpa*. The wood these yield is white, hard, heavy, and durable. The Burmese informed me, during my excursions in the forests, that it admits a fine polish, and they, therefore, use it as handles for their *dah-myongs*. It might be applied for engineering and turnery purposes, tent pegs, and mallets. It is valuable especially for gun carriages. The tree is from four to five feet in girth. Revd. Dr. Mason, I believe, in describing it says that Loudon calls "*Bauhinia* mountain ebony, and the wood though "much like ebony, is quite hard, and might be applied to many useful purposes."

Nauclea. I believe there are five kinds of this species found in Pegu, viz. *Nauclea cadamba*, *N. parviflora*, *N. undulata*, and *N. cordifolia*. The wood may be applied for light work, such as packing cases. It is, however, valued in Canara as yielding excellent flooring planks.

Gordonia floribunda and *G. integrifolia*.
This wood is very compact.

TIMBER TREES MOST PREVALENT IN PROME AND THARAWADIE FORESTS.

Terminalia violata. A strong, elastic, and durable wood. The natives employ it for their cart wheels.

Acacia catechu. Trees of immense size. The timber is adapted for the various purposes of house building.

TIMBER TREES CONFINED ONLY TO THE TOUNGHOO DISTRICT.

Amoora (aglat) rohitoca. White wood, and from a careful examination, I think that it has the character of decaying, and, therefore, only fit for fuel.

Dassia longifolia affords timber as strong as teak.

Vitex arborea. An undersized tree and produces a similar kind of timber as the *Nuc vomica*.

Armosia dasycarpa. A large tree; very hard and durable wood.

Pygium acuminata. A light red wood, not subject to the attacks

of insects. Very few trees have come under my observation, although I paid great attention. I was anxious to make myself acquainted with their value and properties.

LET-TOUK. *Vateria indica*. A very large tree, it yields timber as hard, strong, and durable as the *Hopea odorata*.

TIMBER TREES CONFINED ONLY TO THE PROMÉ DISTRICT.

PADOUK. *Pterocarpus dalbergioides*. This is a leguminous tree well known to the Burmese as *Padouk*. It is plentiful in the Maulmain forests, but is scarce here. It yields a very hard and compact rose coloured timber, makes beautiful furniture, and is equal to mahogany. It is highly esteemed for gun carriages.

THIN-BAU-KA-MA-KA. *Azadirachta indica*. A noble tree of light brown wood, and may be applied for common furniture. The timber, after a careful examination, I found it to be soft. It is known in Bengal as *Nem* wood, where it has been employed for making carved images. It is said that the wood is not liable to the ravages of insects, but I doubt it.

Ulmis integrifolius and *U. alternifolius*. I do not think I am wrong in calling these trees the Indian Elm. They are of the first magnitude, the timber is very serviceable wherever it may be exposed, either in the dry or wet. I consider it is very well adapted for ship planks beneath the water lines. It may be also employed for naves of gun carriages. I believe the timber has never been fairly tried.

TIMBER TREES CONFINED ONLY TO THE PEGU OR ZAMAYEE DISTRICT.

These are four in number, three being white wood, and the remaining one red.

1. *Canarium geniculatum*.
2. *Millingtonia simplicifolia*.
3. *Casuaria pentandra*.
4. *Dolichampia pomifera*.

Numbers 1, 2, and 3, produce white wood. They are very scarce, and I believe in all my excursions in 1854 and 1855, I did not come across more than fifty trees. From the small amount of my experience, taking into consideration the few opportunities I have had of examin-

ing and testing them, I am of opinion that the timber they produce is strong and hard; suitable for machinery, posts in building houses, carriages, musket stocks, spears, and sword handles.

No. 4. *Dolichampia pomifera*. The nature and properties of this tree, I believe, is little known. It has a strong fibre and does not attract atmospheric moisture. The Burmese call it bastard *Inga* or *Pyinkadoe*.

TIMBER TREES CONFINED ONLY TO THE RANGOON DISTRICT.

Gelozium bifarium. A middle sized tree of white wood, and suitable only for common buildings and light work generally.

Photinia seratifolia. A close grained red wood, useful for door frames, railings for verandas, boat beams, beams for houses, and ornamental works. I have made splendid billiard cues and book shelves out of this wood.

Heritiera minor and *H. fomes*. These are known in Bengal as Soondree trees. The timber is very tough and elastic. Notwithstanding these qualities, it is said to be perishable, and shrinks very much while undergoing the process of seasoning.

Sonneratia apetala. The timber decays. It is soft and answers well for boxes and other light work.

The family of the *Dipterocarpaceæ*—besides those I have included in the above list—produces valuable strong timber, and is employed by the natives for building houses and boats.

Dipterocarpus alatus is used as house posts in Toung-hoo. It is found there as well as in the Prome district, in the latter place it is scarce.

To these I shall add the following trees widely dispersed all over the Forests.

- | | |
|----------------|--|
| THIT-KA-DOE. | 1. <i>Cedrela toona</i> . |
| TOUNG-THA-LAI. | 2. <i>Garcinia Cowa</i> , or wild mangoosteen. |
| | 3. <i>Swietenia chikrasee</i> . |
| | 4. <i>Rondeletia tinctoria</i> . |
| SAIK-CHEE. | 5. <i>Sapindus rubiginosus</i> . |
| TA-ALIEN-NOE. | 6. <i>Choolmoogra o dorata</i> . |
| | 7. <i>Dillenia speciosa</i> . |
| | <i>D. augusta</i> . |
| | <i>D. scabra</i> . |

8. *Xanthochymus ovalifolius*.*X. pictorius*.

THIN-GAN.

9. *Hopea Odorata*.

Numbers 1 to 4 are adapted for cabinet and fancy work.

Numbers 5 to 9 may be applied to all purposes of house building.

**TIMBER TREES GENERALLY FOUND CULTIVATED NEAR
TOWNS AND VILLAGES THROUGHOUT PEGU.**

KYWAL.	<i>Spondias mangifera</i> .
THIT-TOE.	<i>Sandoricum indicum</i> .
YAI-YOE.	<i>Morinda bracteata</i> .
PAING-NAI.	<i>Artocarpus integrifolius</i> .
THEE-HOE-THA-YET.	<i>Anacardium occidentale</i> .
ZEE-BYEW.	<i>Phyllanthus embelia</i> .
DAN-THA-LOON.	<i>Moringa pterygosperma</i> .
MAJEE.	<i>Tamarindus indica</i> .
TE-NYIN.	<i>Inga bigemina</i> .
ZEE.	<i>Zizyphus jujuba</i> .
THA-YET.	<i>Mangifera indica</i> .
MA-YAN.	<i>M. oppositifolia</i> .
ZOUN-YA.	<i>Averrhoa Carambola</i> .
LET-KHOKE.	<i>Sterculia fætida</i> .
MAI-ZA-LEE.	<i>Cassia florida</i> .
TSAH-GAH.	<i>Michelia champaca</i> .
PHUNG-NYET.	<i>Calophyllum lanceolaria</i> .
	<i>C. longifolium</i> .
	<i>C. inophyllum</i> .

OILS, OIL SEEDS &c.

Among the oils—of which there is a great variety—there are several which are well adapted for various purposes. They may be extensively used for burning in lamps, lubricating machinery, in the manufacture of paints and varnishes, as an article of food, for medical purposes &c. &c. The employment of oil, at a very early period, is manifest from its being extensively used by the ancient Hebrews, Egyptians, and the Greeks in the various preparations of food in lieu of animal fat and butter, and for burning. Among them, anointing was the ordinary token of welcome to guests in every entertainment. It is also said that it was usual for a servant to pay attention to every comer and to anoint his head before he seated himself.

The seeds of *Sesamum Indicum* are very much esteemed by the Burmese. They are sometimes made into a kind of bread and toasted over the fire, and when mixed with a little sugar, is delicious.

HNAN.

The fresh seeds yield a considerable quantity of warm pungent oil.

Carthamus tinctorius is extensively cultivated in many places, on account of the flowers, which are used as a dye, without its property to furnish oil seeming to be known to the Burmese. When I made mention of it to them they gave no credence to it. The seeds furnish a kind of oil highly prized in Bengal and called *Ka-sam-ba-till*.

HSOO.

Pinnacotay oil, so called by the Madrassese, is obtained in large quantities from the seeds of three species of *Calophyllum*. The trees are very handsome, called by the Burmese *Phung-nyet* and occur cultivated by Phoungyees about their Kyoungs. Dr. McClelland in describing *Calophyllum longifolium* in his Pegu list of Aromatic or Essential oils, says "this tree, together with *C. inophyllum* and *C. lanceolaria* is cultivated for the fragrance of its flowers. The seeds "are large and contain a considerable proportion of oily matter, which "possess much of the aroma of the flower."

PHUNG-NYET.

Sinapisdichotoma is cultivated by the Burmese to eat with their *ngapee*. The seeds afford the common mustard oil. I believe they are unacquainted with this *oleum*, although universally expressed in various parts of India.

MONG-NGYEEN.

The Burmese of the Tenasserim Provinces express oil from the seeds of *Bassia longifolia*. The tree is called *Kan-zau* by them. The people in the Northern Forests of Tounghoo (where the tree is found in abundance) seemed to be unacquainted with the value of this oil.

KAN-ZAU.

The Burmese call it the Ceylon mangoe. I have always found it about the Kyoungs and villages. The nut of this tree (*Anacardium occidentale*) found at the apex of the fruit, yields the Cajew apple oil.

THEE-HOE-THA-YET.

Moringa pterygosperma is a common tree all over the Province, and Revd. Dr. Mason writes that he "is not aware that any oil is pressed from the seeds in these provinces. But in the West Indies

DAN-THA-LOON.

"the oil of this tree is used for salad oil, and because it does not coagulate or turn rancid, it is employed by watch makers, and for retaining the aroma of delicate flowers."

THIN-BAU-KA-MA-KA. *Azadirachta indica*. A pale yellow oil is yielded from the ripe fruit of this tree.

EN-GYEEN. *Shorea robusta*. The seeds of the produce of this tree affords an excellent oil.

LET-TOUK. *Vateria indica*. This large and beautiful tree affords an abundant supply of oil fruit.

TOWN-THAN-GYEE. *Xanthoxylon budrunga*. The seeds of this tree abound with sandal wood oil.

SA-BA-LEEN. *Andropogon Schananthus*. A fragrant oil is obtained from the seeds of this grass.

KHWAI-DOUK. *Connarus speciosa*. The seeds abound in sweet oil.

Buchanania latifolia and *B. augustifolia*, both yield valuable oil seeds.

Wood Oil. It is derived from an immense forest tree (*Dipterocarpus turbinatus*) called by the Burmese

KA-NYIN. *Ka-nyin*. I think it would be a very excellent and cheap substitute for linseed oil, as it possesses superior preservative properties.

Castor oil is obtained from the seeds of the *Ricinus communis*. It is said that, in the Coromandel coast, it is used very generally by the natives, being equally cheap in purchase, and affording a far clearer oil than either the mustard or sesamum. Pegu can supply this oil more advantageously than from any other source.

Melaleuca Cajuputi produces cajuput oil which, when first drawn, is pellucid, volatile, and limpid.

KA-NAI-KHO. *Croton Tiglium*. I have never seen the Burmese express oil from the seeds of this plant.

GUMS, GUM RESINS, &c. &c.

The series of Gums in Pegu are very extensive and interesting.

The following selections embrace the most useful, and might be used in large quantities for a number of purposes in the arts.

Resins, for the most part, might be employed in the formation of varnishes and lacquers, as well as for different purposes in dyeing.

EN-GYEEN GUM. This is the produce of the *Shorea robusta*.

FLMAN GUM. The plant affording this article is well known by the name of *Feronia elephantum*. It is scarce and found in the vicinity of Kyoungs.

It is produced from the *Moringa ptery gosperma*. The tree is extensively propagated by the natives for its long pods, leaves, and flowers, which are eaten as curries, and well known to Europeans as horse-raddish. It is one of the most easily cultivated of all garden plants, growing in almost every soil or situation. The gum produced is soft and difficultly soluble.

THIN-BAU-KA-MA-KA GUM. It is yielded by *Azadirachta indica* which constitutes a larger portion of the forest trees in the Prome district than in any others.

ZEE GUM. A good very adhesive gum, resembling tears, exudes from the *Zizyphus jujuba*.

An inferior kind of gum is procurable from the *Mangifera indica*. The tree is cultivated throughout Pegu, and is abundant especially in the Tharawadie and Tounghoo districts.

ASTRINGENT GUM. The trees affording this gum are *Conocarpus latifolia* and two species of *Bombax*.

This article is found in the bazars and extensively exported for the European market in the form of flat cakes packed up in bags or small chests. It is yielded by *Acacia catechu*. This valuable tree flourishes best in localities situated North east of Prome and the Northern parts of the Tharawadie district.

A semi-transparent juice of a yellowish color is annually exuded from the Cashew nut tree, or *Anacardium*, a genus having one species, entitled *occidentale*.

THEE-HOE-THA-YET GUM. The gum contains a resinous substance in its composition and therefore of very little use. Dr. Voigt, however, seems to think that it exudes "from 5—12 pounds weight, of a white transparent gum, like gum arabic, and not inferior to it in virtue or quality."

It is a gummy resinous juice, obtained by exudation from the bark of *Odina wodier*. It has, I believe, a peculiar strong smell and of a little bitterish taste, and unites with water by trituration into a kind of viscious fluid, but does not perfectly dissolve in it.

GALBANUM.

GUM KINO.

This powerful astringent and sweetish gum is obtained from the *Pterocarpus dalbergioides*, and is to be found in the northern parts of the Prome district.

This is called *Pulos* kind in Bengal. It is obtained from the exudation of *Butea frondosa* and *B. superba*.

POUK GUM.

It is said by Dr. McClelland "to be one of the most useful kinds of gum and might be supplied to any extent from this province." Mr. Guibort of Paris in describing its virtue and quality, says that it is the "original kind which had entirely disappeared from commerce, and was once so much valued, as to be sold for nearly a guinea a pound."

This is a concrete vegetable juice composed of a gummy and resinous matter obtained, as quoted by Dr. McClelland, from *Xanthochymus ovalifolius*, *X. pictorius*, and *Garcinia cowa*. These trees are, however, scarce.

GAMBOGE.

The Burmese are unacquainted with this produce, and is yielded by the *Vateria indica*. It exudes a balsam of a semifluid state; but when exposed to the air it soon becomes hard. The tree is found in the Tounghoo forests.

LET-TOUK.

This is obtained from the *Melanorrhæa usitata* and *M. glabra*.

THEET-SEE.

The Burmese use it as a lacquer. This curious substance, though fluid when first obtained, soon hardens and solidifies. I think it would be a very good material for coating guns and gun carriages.

BIRD LIME.

A substance evidently allied to caoutchouc, and is yielded by the *Artocarpus*. The juice is inspissated.

KYET-POUNG.

Echites. It is a large creeper. The Burmese call it "fowl's leg;" yields a very fine caoutchouc.

DAMMER.

This is found in all our bazars. It is abundantly obtained from various species of *Dipterocarpaceæ*, namely, from the *Shorea robusta*, *Hopea odorata*, *Dipterocarpus turbinatus*, *D. lævis* and *D. alatus*.

DYES.

The prevailing colors in silk and cotton in Pegu are yellow, red, chocolate, blue, and black. They are generally very fugitive, es-

pecially with cotton fabrics, and consist in staining by emersion and afterwards exposing to the sun, by which process the fabric becomes penetrated with the coloring matters thus brought in contact with it. The patterns are all stripes and checks, a decided mark of rudeness, printing being unknown.

The following plants, which have the reputation of affording dyes, may be easily had in almost unlimited quantities, and at very little more trouble than the mere cost of collection to minister to the wants and luxuries of the human race. They are, consequently, well worthy of the attention of practical dyers.

The root of *Curcuma longa*, and the wood of *Artocarpus integrifolius* are much employed by the Burmese for this colour; the flowers of *Butea frondosa*, *B. superba*, and the leaves of *Mimocylon tinctorium* are also used for this dye. The first named, *Curcuma longa*, affords a brilliant yellow, but unfortunately does not possess the power of resisting the constant action of washing.

The dried petals of the *Carthamus tinctorius*, the seeds of the *Bizarrina*, the bark and root of various species of *Morinda*, the wood of *Melanorrhæa usitata*, and *Adenanthera pavonia* are all employed to give red colour. The fruit of *Tamarindus indica*, the flowers of *Galedupa zatripetala*, *Cedrela toona*, and *Grislea tomentosa* impart also this dye.

The bark of mangrove (I believe *Kandelia Rheedii*) is used for this dye.

The materials employed for this colour are the leaves of *Indigofera tinctoria*. I have also seen *Asclepias tinctoria* used as a substitute for the true indigo,

The fruits of *Melastoma malabathricum* produce a fine black dye. The fruits of the *Terminalia chebula* and *Semecarpus anacardium* give also this colour.

FIBROUS PLANTS, &c., &c.

This division is, I believe, very important, as it affords materials for manufacturing purposes, and I may be allowed to give my testimony in favor of Pegu as an exhaustless field of vegetable fibre.

Gossypium herbaceum. The seeds of this plant are sown in small quantities by the Kareens and other inhabitants of the forests for their own consumption.

WA.

They sow the seeds, generally in May, and during the spring rains; the holes are dug in distinct rows, at a distance of a cubit from one another. When they have shot forth, the natives reap them twice before January. By such gatherings the plant, though an annual, survives if left to itself, for two or three years and produces good quantity of fruits. I have found them to possess beautiful fine wool, but always short. The chief cause is, that the natives do not bestow any care or skill in their cultivation. Before our occupation, it is said that the cotton of Pegu was sent to Chittagong and Dacca, and constituted the material of the fine Dacca muslins.

Bombax pentandra and *B. heterophylla*. They are extensively useful from the cotton they produce, in very large quantities, with which the poor foresters stuff their pillows. The cotton is rather rough

LET-PAN.

and of inferior quality, being dirty, short staple, and weak in the fibre and is, therefore, incapable of being spun like ordinary cotton. Notwithstanding these defects the enterprising natives of Bengal spin into a large and loose thread, and weave into a kind of inferior cloth with warps of some other fibre. I have dyed the cotton with the fruits of *Melastoma malabathricum* and found that it would answer very well the purpose of felt in the manufacture of hats. This result shows that the *Bombax* wool is deserving of further attention of Merchants and manufacturers, and that it may become probably an important article of traffic.

Corchorus capsularis and *C. olitorius*. They are generally found in the lower part of the Province. The jute

BET-WOON.

rope well known in commerce is made from the fibre of these plants.

Calotropis gigantea. This is the mudar plant. The Burmese call it *Ma-yo* and is extensively cultivated by them, and may be had in almost unlimited quantities. The fibre is very strong and is,

MA-YO.

therefore, manufactured in Bengal into chords.

Crotalaria juncea. It belongs to the family of plants *Leguminosæ*, and is found in abundance about Wahnnet village—in Phoungyee valley—and probably exists in other districts. The stems afford what is called Indian hemp.

PAN.

Hibiscus cannabius. I have found this plant cultivated, although not to the same extent as the *Calotropis*. If the stems are immersed in water till putrefaction commences, and afterwards washed and beaten, give a fine fibre. The effect of this process is to divide and split up the fibre in a most remarkable manner.

Hibiscus macrophylla. The bark of this tree is extensively used by the Burmese in the manufacture of ropes.

Ulmis alternifolius and *U. integrifolius*. The rind or bark of these trees may serve for paper-making.

Hibiscus tiliaceus. This is found in abundance about Rangoon along the banks of streams. The bark affords excellent cordage.

Grewia floribunda. A tree of universal prevalence to be met with at every step in the Southern parts of the Province. The fibre of it is strong and affords a coarse cordage.

Urena lobata. It is a common weed and yields an excellent hemp.

Æschynomene paludosa. This pretty little annual takes possession of paddy ground and affords a very fine hemp.

Butea frondosa. The fibre of this tree would answer very well for common cordage.

Microlaena spectabilis. The fibre it yields is strong and may be employed like that of the *Butea*.

Bignonia coronaria affords material for rope making.

Ananas Sativus. The leaves yield, if macerated, a good flax for manifold purposes. The pine-apple grows most abundantly throughout the Province—almost wild—even in the mountains amongst the Kareens.

It is an exotic plant, and said to have been introduced from America and how it could have travelled up hundreds of miles into the interior, where scarcely any population has been, it is very difficult to determine.

Sida stipulata and *S. acuta*. These weeds are found in abundance especially in the Tharawadie district and produce a fine flax. I have found the roots very bitter.

Musa paradisiaca. A splendid hemp is obtained from this plant. Canvass and rope are said to be made from it.

Silk. It is produced in small quantities of a coarse kind, owing to the imperfect way in which it is reeled off than to any fault of the cocoons. The worms are fed on *Morus indicus* by the Yaihanes. They are far from being so superstitious as their contemporaries of Bengal, that the breeder should subject himself to the most absurd privations, abstain from eating the *Curcuma longa*, from shaving his beard, and live in a state of celibacy; without which observances the Gangetic philosophers consider the worms would die or generate.

SPICES.

Under this denomination are included all those vegetable productions which are of a fragrant odor, and an aromatic flavor. It is possible, I believe, that among the spices of early times were included many of these which now constitute articles of Commerce from India to Europe.

Piper Betel. This vine creeps up trees, the leaves of which are universally chewed by the natives, with the nuts of *Areca* and lime, and is said to sweeten the breadth and strengthen the stomach.

There are two kinds of this climber and called by the Burmese *Koon-yin* and *Koon-yine*. The former is cultivated for domestic use, and the latter, a wild species, is found all over the Province, and in time of scarcity is often used as a substitute for *Koon-yin*.

Limonia carnosa. The fruit of this tree is very much prized in Bengal as a favorite spice. I found it growing on the banks of the Pegu or Zamayec forests between the outlet of the Pymmah choung and Zountoo village.

Laurus nitida. I met with this tree in Zee-gone and Ing-gouk villages (in Pegu and Tounghoo forests) the leaves and bark are aromatic the latter affords an inferior cinnamon. I have never come across the tree in flower or fruit, but from a careful examination, I found that it was not *Cinnamomum iners*.

Cuminum Cyminum. This plant is cultivated; the seeds are used to spice curries.

Alpinia (Cardamomum?) I have noticed it growing along Thabyew choung, in Phoungyee valley, and suspect that it is the Cardamum plant. The place was studded all over with it.

- Myristica moschata*. We found several tree about the size of a Yatheet growing wild on the banks of the Kodoogwai in Pegu or Zama yee district.
- Coriandrum sativum*. This is cultivated in small quantity for domestic use. The Burmese use both the plants and seeds as condiments to their curries.
- Xanthoxylon budrunga*. The capsules, seeds, and even the thorns of this tree are aromatic and bitter. It is found as a large bushy thorny shrub or a small tree in Pegu and Tounghoo forests. It is more abundantly met with in the Southern parts of the latter.
- Capsicum minimum* and *C. purpureum*. They are commonly called chillies. The Kareens use them in every dish and they do really beat out the Chittagonians in this respect; the plants are found in toungyas throughout the Province.
- Andropogon schænanthus*. I have often used the leaves with tea both in a dry and green state, to give it a better flavor. It is cultivated by the natives throughout Pegu. They make an infusion of the leaves and drink as tea.
- Sinapis dichotoma* is cultivated for the sake of its leaves which the natives eat, in a green state, with their *ngapee*.

MEDICINAL PLANTS, &c., &c.

The traveller, in exploring the country, finds herbs &c. always resorted to by the natives as their medicines; and, though living in the most uncivilized state, they employ them advantageously for the relief of those maladies to which they are subject, and as the properties of many had been made known to me, from personal observations and enquiries, during my travels, I put forth the little I possess and trust it will excite the attention of Medical Gentlemen to investigate a path, by taking an excursion, which is replete with new subjects, created for the service of human race.

- Moringa pterygosperma*. The juice of the leaves of this tree dropped into the eyes, for a few days, is said to help all infirmities of the *oculus* that cause dimness of sight.
- DAN-THA-LOON.

Nigella sativa. The utility of the seeds is considerable. They possess all the properties, when taken inwardly,

SA-MOUNG-NET.

ly, of allaying the pain and removing the flatulence of both the stomach and bowels.

The plant is cultivated by natives, and found in almost every village throughout the Province.

Cucumis sativus and *C. utilisissimus.* The juice of the fruit is used by the Kareens to provoke urine, and if taken

THA-KHWAH.

in large quantities it is said to be a sort of remedy for those that are laboring with ulcers

in the bladder. I consider that it is an especial remedy against opium taken too liberally.

Smilax ovalifolia. This is the bastard *Sarsaparilla*. I have come across a great number between Thignapha and Zeegone villages in Tharawadie district.

COO-COO.

In a refined form, it might be identical, in all its properties, with the true and genuine species.

Artocarpus integrifolius. The leaves of this tree are boiled in water by the Burmese with a little seasoning

PAING-NAL.

of pepper and *ngapee*. The dish is called *hinga* by them. It is said that it is good for

nurses to increase their milk, and makes it more wholesome for children.

Zingiber officinale. I have found this plant about the city of Pegu. In Rangoon also, it is cultivated to

GIN-SAING.

a very small extent. Its root is well known to possess sialogogue, stimulant, and carminative powers.

Mentha quadrifolia. I have often seen the Kareens apply the macerated leaves of this plant to the forehead

PIN-SAING.

and temples; they say that they ease pains in the head, and also good to wash the heads of

the young and old with them against all manners of breaking out, sores, or scabs. My father has informed me that the decoction being gargled in the mouth, cures the gums and mouth that are sore, and mends an ill savored breath.

Kæmpfera Galanga. The Burmese say that this genus contains forty species, but the best are those

GAH-MONE.

found growing on hills. The roots enter their *Materia Medica*.

- Morus Indicus.* The Yaibanes make a kind of decoction out of the leaves of this plant to kill worms. They assured me also that, if the leaves are well beaten with tamarind water, they are good to lay on such part of the body that is burnt with fire.
- POE-SAH. ' ,
- Cordiospermum Halicacabum.* In Tharawadie district this plant is very much cultivated. The natives use the root on account of its aperient properties.
- Cassia fistula.* This is the purging *Cassia*; the tree is scarce, about thirty feet in height. The pod it bears is black and contains seeds imbedded in a soft black pulp.
- NGOO-GAEE. ' ,
- Cassia alata.* The Burmese cure their scabies of *psora* by bathing with the boiled water of the leaves of this tree.
- MAI-ZA-ILL-GALL. ' ,
- Quisqualis indica.* The tender leaves of this plant—commonly called the Rangoon creeper—are extensively used by the natives in cases of dysentery or diarrhoea.
- DA-WAY-MHING. ' ,
- Nymphaea pubescens* 1, *N. rubra* 2, and *N. stellata*, 3. The Burmese use the roots of these aquatic plants to cool all inflammations both inward and outward heats of agues. The leaves have been mentioned to me of being effectual to stay all fluxes of blood. The flowers are boiled in water, and this decoction is said to be an excellent cure for those whose urine is hot and sharp.
1. KYAH-BYUW. ' ,
2. KYAH-NEE. ' ,
3. KYAH-NIO. ' ,
- Murraya exotica* produces a fragrant bark. I found it scattered in the Rangoon district, and must be considered scarce. This is a favorite cosmetic with the Burmese maids to cure pimples or pustulated varioloid.
- THA-NAT-KHA. ' ,
- Agathotes Chcrayta.* I met with this plant near the city of Pegu. I have found the boiled leaves and roots to excite and strengthen the action of the stomach.
- II-SAI-KHA-GYEF. ' ,
- Azadirachta indica* is a very valuable tree. I have mentioned in my Journal of 1856 of having come across a great number of it in Prome district, and is "known to the Burmese as *Thin-bau-ka-ma-ka*", and the leaves and bark rasped down and infused in cold water

"are used by them as a specific for all kinds of skin diseases or the result of violence as a bruise. The headman of this place assured me that he has employed this remedy again and again in such cases with perfect success. It would be well to try their properties."

Sesbania aegyptiaca is raised in small quantities, and in Bwett-jee, in the Rangoon district, it is a common thing to come across it. In cases of violent inflammation of ichorous sore, the natives recommend the repeated affusions of cold water mixed with the rasped leaves of this plant. They are also eaten to cure dysentery.

Clitoria ternatea. This is called by the Burmese *Oung-mai-phyew*. It is found in abundance throughout the Province. The roots are said to be emetic. This creeper is so abundant, that Pegu might supply the whole India with emetic.

Ulmus alternifolius and *U. integrifolius*. It is said by the Kareens that the decoction of the bark is excellent to bathe such places as have been burnt with fire.

Allium sativum. This is a perennial bulbous rooted plant, and is considered by the natives as vermifuge.

Curcuma longa is found in abundance in the bazars. The natives call it *Sauwin*; they think it is very useful medicine and a remedy for all kinds of diseases.

Calotropis gigantea. A great deal of this I have seen in culture almost all over the Province. The root is said by the Burmese, as a sure remedy for the jungle fever. It is boiled in water. The leaves and roots, I have been informed, when beaten and applied to any part of the body that is discoloured with white scurf, clean thoroughly and take it away. Revd. Dr. Mason in describing this plant writes "European practitioners recommend the juice of the plant in cases of leprosy above all other preparations."

Cassia Tora. The Burmese make a decoction of the leaves. They say that is an useful purgative, operating mildly, though effectually. This weed is found almost every where, but avoids the Sunderbunds.

Cassia occidentalis is found in abundance about Ava from whence

KATAW. the Rangoon market is solely supplied with its fruits, which enter in the Burmese *Materia Medica*. They have the appearance like that of the seeds of the *Artocarpus integrifolius*, and abound in oil.

Cassia elongata. A friend of mine, whilst on his way to Ava, sent me a flowering specimen of this plant to be identified; he wrote to me to say that he "found it in abundance growing in the city of Pagan near Shoay-zee-gone pagoda." It is without doubt the Senna plant.

Toddalia aculeata. It is called *Kone-ka-thet* by the Burmese. I have found it very common about the North of the Dagon pagoda near Yaigoo and Kambet villages. It shows a height of from eighty to one hundred cubits and five feet in girth. The bark and thorns are used as cosmetic by the natives to remove blotches. I have been unable to ascertain why the Burmese prefer this tree to train their betel vines, probably on account of its height and magnitude and, at the same time, the thorns keep away persons from pilfering the leaves of the Betel vine.

Cinnamomum iners. I have received information, from a reliable source, that this tree is found growing in Burmah proper in abundance particularly in the township of Mah-ywai and Wet-yar-ma-soot.

Blumea grandis. This is the camphor plant and occurs in the Province in a wild state, and in Siam distinct it is plentiful growing to the height of ten feet with a girth of three to four inches.

Isora corylifolia. The fruit of this plant enters in the Burmese *Materia Medica*. It is called by them *tha-ngay-chet*.

Terminalia chebula. The fruit is used by the natives as an external application for Ophthalmia.

Ricinus communis. The oil is obtained from the seeds of this plant which is undoubtedly the most common in the Province. The Burmese are well acquainted with the value of it, and propagate it as much as they want, for their own use. I consider that it is not particular with regard to the soil, and from what I have seen it grows beautifully in low marshy ground as well as on the mountains.

KA-NAI-KHO.

Croton Tiglium. This and four other species the Burmese cultivate for medicinal properties. In fever they use them as their principal purgative.

Nicotiana tabacum.

This is known to the Burmese as *Tsai* which implies medicine. From this it may be inferred that, on its first introduction — which I

TSAL.

have every reason to believe to be the case — it was used medicinally, and held up, probably, as an infallible remedy.

Tamarindus indica.

A singular property of the fruit is this, when made into a sherbet; and it does not merely restrain undue action of the bowels, as in

MAJEE.

diarrhœa and dysentery, but also in cases of obstinate constipation acts as a mild and certain laxative. It may be said in all cases to regulate the bowels.

Ægle Marmelos.

The Burmese and Karens make a decoction from the root of this tree, and administer it

OAK-SHEET.

in bilious fevers. I understand that in Bengal the sherbet of the ripe fruit is used in order to promote the regular action of the bowels.

Punica granatum.

The flowers and rind are given in decoction in cases of dysentery. I have also seen the bark of this tree used sometimes by the natives in fever, but rarely alone.

THA-LAL.

Aloe soccotrina.

A kind of inspissated juice is said to be obtained from this plant and hardens by evaporation: the Burmese call it *Moke*.

TA-SOUNG-LET-WA.

Anethum graveolens is valued for its medicinal properties.

SA-MHOT.

TANNING PLANTS, &c. &c.

Pegu offers a wide field for tanning materials. The following trees afford barks for a substance, called sometimes the "astringent principle," and which, I think, when imbibed by the hides or skins, thickens them in their structure, augments their weight, makes them impervious to water, and no longer susceptible of putrefaction.

TOUNG-THA-LAL.

Garcinia cowa.

BAN-BWAL.

Careya arborea.

SHAH-BIN.	<i>Acacia catechu.</i>
KYWAH.	<i>Spondias mangifera.</i>
THIT-TOE.	<i>Sandoricum indicum.</i>
ENG-YEEN.	<i>Shorea robusta.</i>
THAH-BYAL.	<i>Eugenia jambolana.</i>
	<i>E. myrtifolia.</i>
	<i>E. pulchella.</i>
	<i>Rhizophora mangle.</i>
	<i>R. conjugata.</i>
	<i>Kandelia lkeedii.</i>

Tannin is not only confined to barks of trees, as in several countries the gums of the undermentioned trees—which are very common in Pegu—have been used with very great success. Sometimes it is obtained from *Terra Japonica* from a decoction of the wood of *Acacia catechu*.

PADOUK.	<i>Pterocarpus dalbergioides.</i>
POUK.	<i>Butea frondosa.</i>
POUK-NWAY.	<i>B. superba.</i>
LET-PAN.	<i>Bombax pentandra.</i>
	<i>B. heterophylla.</i>
	<i>Conocarpus latifolia.</i>

Another process of tanning may be derived from the dried fruits of

ZEE-BYEW.	<i>Phyllanthus embelia.</i>
KYA-ZOO.	<i>Terminalia chebula.</i>
HPAN-GAIL.	<i>T. Bellerica.</i>
	<i>Diospyros.</i>
PIN-LAI-OUNG.	<i>Xylocarpus Granatum.</i>

ECONOMICAL PLANTS, &c. &c.

In their uses to the natives, the undermentioned plants represent almost all other families.

Bambusa. It is principally employed by the natives in building, in making mats, furniture, boxes, baskets, and other utensils. We have great many varieties; but the *Bambusa gigantea* stands foremost.

Nipa fruticans inhabits low ground, and is generally cultivated on account of its leaves, which are used to thatch houses.

WAH.

DA-NEE.

Imperata cylindrica is found in abundance throughout Pegu. It is employed to cover houses. I think it would be wise for our Government to prohibit the use of this grass, as a material for roofing purposes, especially in large towns and populated villages, on account of its inflammableness.

THET-KAI.

Licuala longipes. The inhabitants of our teak forests sometimes cover their houses with the broad leaves of this palm.

Pandanus furcatus. I have found it growing in the Rangoon district about the Sunderbunds. The leaves are plaited by the natives for mats which find, at all times, a ready vent in the market.

THA-BAW.

Arundo. Bamboo mats, in general use and commonly called *Cucabine*, are made from this plant.

KYOO.

Calamus grows very abundantly. During the Burmese time a trade to a considerable extent was carried on with Bengal. It is extremely flexible and sold in the bazars in bundles, each of which contains a hundred or one hundred and twenty five canes, neatly tied in the middle, and the ends bent together. It is extensively employed by the natives in lieu of cordage.

KYAING.

Corypha Taliera is used as a vehicle for writing.

PAY.

Corypha umbraculifera. The large fans which the Phoungyees carry with them are made from the leaves of this plant. They also serve as umbrellas to the Kareens.

VEGETABLES.

There is a great variety of esculent vegetables cultivated throughout Pegu.

Allium sativum or garlic. All the parts of this plant, especially the bulbs, are well known to possess pungent offensive odor and an acrimonious biting taste.

KYET-THOON-BYEW.

The bulb is greatly used by the Burmese with their *laipet* or native tea—which is the produce of some part of the Burmah territory—an article of great and general demand. It is eaten after meals with a mixture of sesamum oil, and it is customary to offer it to guests and strangers as a token of welcome.

Allium cepa. It is a common onion which forms a sort of a vegetable food to the natives, and serves them as an addition to their curries, or eaten with *njap-ee* in a crude state.

KYET-THOON-NEE.

Trichosanthes anguina. This striped gourd always meets a ready sale in the bazars.

PAI-LIN-MWAI.

Momordica charantia. The fruit although very bitter, is very much sought after by the Burmese. It is prepared and eaten in various ways. They call it *Kyet-hin-gah*.

KYET-HIN-GAH.

Luffa pentandra. A long gourd having numerous seeds imbedded in it. The Burmese are extensively fond of this vegetable.

THA-BOOT.

Lagenaria vulgaris. It is the bottle gourd so frequently to be met with in the country. It is difficult to decide whether it has been introduced from America or indigenous. When planted at the foot of the tree, it emulates the vine in ascending its branches; and near a hut it soon covers its thatch with a coating of green.

BOO-TSIN-ZWAI.

Benincasa cerifera. This is undoubtedly a favorite pumpkin of the Chinese, and forms one of their principal sea stocks.

KYOOK-HPA-YONE.

Cucurbita maxima. It is the red pumpkin. The pulp when boiled and eaten smashed, tastes like turnip.

SHOAY-BAY-YONE.

Cucumis Sativus, or cucumber, is considered as a luxury by the natives. They give out that it is most certainly eaten without the least inconvenience.

THA-KHWAH.

I have always observed the Jews and Moguls take it first thing in the morning, which, they say, cools the system, and at the same time is gently laxative.

Moringa pterygosperma. This is the Indian horse-radish tree remarkable for the value of its root, which, when scraped, may be used as a condiment for roast beef and other culinary purposes. The

DAN-THA-LOON.

leaves, flowers, and pods are esteemed by the Burmese as a valuable addition to their curries.

YONE-BAH-DEE.

Abelmoschus esculentes. It is the ladies' finger, and is only preferred, both by the Europeans and Burmese, when green and tender.

CHIN BOUNG.

Hibiscus sabdariffa. The Burmese call it *Chin-boung*. They make an extravagant use of the leaves. It is the roselle plant.

KAH-ZOON.

Batatas edulis. It is the sweet potatoe with the red skin, and yields a considerable quantity of farinaceous matter.

KHAH-YAN.

Solanum melongena or brinjal. It is also called egg plant. Several varieties are cultivated, and is a common vegetable of our bazars.

Solanum lycopersica. Tomato, or love apple, is grown extensively by the Burmese. The fruit is red,

KHAH-YAN-NYAI-HPONE, and I found it very common in the Tounghoo and Shoay-gyeen districts.

NGA-YOKE.

Capsicum. I believe we have in the country two species, namely, the red pepper (*C. purpureum*), and another called the bird's eye or *C. minimum*.

PAING.

Colocasia antiquorum. The tuberous root is eaten by the natives, which they say is not inferior to potatoes.

MONG-NGYEEN.

Sinapis dichotoma. It is of a common culture.

Raphanus sativus.

This common radish is raised in Rangoon by the Burmese and Chinese, and very sparingly in the mofussil. It is an exotic species, originally from China.

MONE-LAH.

Agati grandiflorum. The legumes, flowers, and tender leaves of this plant are used by the natives for a pot herb.

POUK-PAN.

Psophocarpus tetragonolobus. The esculent roots are eaten by the natives with sesamum oil and salt.

PAI-MYIT.

Dolichos pilosus. It is the jungle doll, and in time of scarcity is eaten by the Kareens with avidity.

TAW-PAI.

Cicer arietinum is extensively cultivated in the upper Province above Prome. This is no doubt an exotic, as it is known as *Ka-lai-pai* to the Burmese, which signifies foreigner's bean.

KA-LAI-PAI.

*PAI.

Lablab vulgare abounds in the native gardens.

PAT-DAH-MAH.

Canavalia gladiata is more commonly known as sword bean, and raised to a small extent.

MYOUK-NEE.

Dioscorea atropurpurea. It is the purple yam. The Kareens prefer eating it with jogrec, rather than use it in their curries.

MYOUK-PYEW.

Dioscorea globosa or white yam, is more extensively cultivated than the preceding.

WAH-MYIT.

Bambusa. Young shoots of the bamboo are eagerly sought after by the Burmese. The Chinese prefer that of the *Bambusa gigantea*.

MHO.

Fungales are sold in the bazars. I have not studied them, and therefore am unable to state their different species.

CULTIVATED FRUITS.

There are very few good fruits to be had in the Province, the Burmese being indifferent to the finer qualities of flavor, and bestowing no skill or pains in their culture.

Ananas sativus. It is the Pine apple. The natives leave the plant entirely to the care of nature without any apprehension of its perishing. Notwithstanding which, the fruit grows to great perfection.

NA-NAT.

Citrus aurantium. Oranges are abundant in the Tounghoo and Shoaygyeen districts, and, as the quality depends greatly on how they are taken care of, and as the natives pay very little attention to them, the fruits are rather indifferent.

LAIN-MWAH.

Carica papaya. This is the Papaya fruit. The tree is found throughout the Province, and grows without care. The fruit, in a half ripe state, tastes like the sweet pumpkin.

THIM-BAW.

Anona squamosa, or Custard apple, is very common in Prome district. "This fruit," observes Dr. McClelland, "was cultivated in the Burmese time to great extent, and with much success, on the slopes

"of the hills about Prome on both sides of the river. Since our occupation of the country, the plantations have fallen into neglect, and although supplies of the fruit are still furnished, yet they are so to

“ a much more limited extent, and as the plants now receive no care, the fruit will be soon scarce.”

Psidium pyrifera is the Guava fruit which grows most luxuriantly throughout the Province. There is another species entitled the *Psidium pomiferum*, which is not extensively cultivated.

MA-LA-KA.

THA-YET.

Mangifera indica. The Mangoe is undoubtedly the most common fruit. Some have a strong smell of turpentine. The tree is abundant, chiefly in low grounds.

Egle Marmelos, or the Wood apple, is a much beloved fruit; the tree occurs about towns and villages throughout the Prome and Tounghoo districts. Our bazars are generally supplied with the fruit from March to July.

OAK-SHEET.

THAM-BA-YA.

Citrus bergamia. This small sour lime may be always had in the bazars; the tree is widely diffused.

THA-LAI.

Punica granatum. The Pomegranate is sparingly raised by the natives.

THRE-HOK-THA-YET.

Anacardium occidentale. The Cashew fruit is filled with a pleasant acid juice.

Cocos nucifera. The fluid of the young nut is a very refreshing drink. The tree is sometimes annually tapped from early growth, and, in some instances, until its juice is exhausted. The sale of this

QANG.

liquor, commonly called toddy, forms—under the denomination of Abkaree duties—a considerable source of revenue.

Artocarpus integrifolius. The Jack is chiefly planted around Kyoungs. The wood answers as a yellow dye for the garments of the Phoungyees, and the fruit as an article of food. It is also found near towns and villages, and grows to great perfection without care.

PAING-NAI.

Tamarindus indica. Tamarind trees scattered throughout the Province are considerable, and I believe they are daily increasing. They yield very acceptable fruits, and a large annual supply of any quantity can be obtained for exportation from all parts of the Province.

MAJEE.

HPA-YAI.

Citrullus Cucurbita or Water melon, is a salubrious cooling fruit.

- Cucumis Melo.* This is the fragrant melon, and has something of the taste of the preceding species, but is not so cool; yet it is esteemed as a luxury by the natives.
- THE-KHWAH-MHOAY.
- Durio Zibethinus*, or Dorian. There are a few trees about the Shoay Dagon pagoda, and the "King of Burmah," writes Dr. McClelland, "has obtained the supplies for the royal table from Maulmain."
- DOO-WIN.
- Averrhoa carambola.* I have met with it in the interior as well as about Rangoon. The fruit enters into the favorite dishes of the natives.
- ZOUN-YA.
- Morinda bracteata.* It is cultivated about the Kyoungs and near villages for its fruit, which is generally gathered and dressed as curry.
- YAI-YOE.
- Zizyphus jujuba* is generally found in villages throughout the Province, and bears a small sour plum which the natives value. It is dried and exported in large quantities, and is always for sale in the bazars.
- ZEE.
- Borassus flabelliformis.* The young fruit is delicious. Pounday district affords a prodigal display of this tree.
- HTAN.
- Musa paradisiaca.* Plantain is very common and thrives well every where. No Burman or Kareen toungeya is without it, and as the latter looks out every year for a new spot, the plantain gardens are also yearly abandoned. The fruit, thus left to itself, is said to deteriorate, in the course of two or three years, to be only acceptable to monkeys. Dr. McClelland, in noticing this plant, states that, "although perhaps there is no Province in India in which plantains are grown to so great an extent as in Pegu, yet there are scarcely any good plantains to be had in the country. This is owing to the Burmese habit of only eating green fruit, and their total indifference to the finer qualities of flavor. The great use of all fruit with the Burmese is to serve as an addition to their curry, for which purpose one kind of plantain is just as good as another. But now that a market is opened for the better description of this and other kinds of fruit, the introduction of good stock becomes desirable."
- NGHET-PYAW.

WILD FRUITS.

Many of the wild fruits are agreeable, and although they are peculiar to the country, no one has, to my knowledge, ever tried to ameliorate them. Several no doubt will, in time, become valuable pomological additions.

Castanea indica. The fruit is relished by Bears. As an article of food, it is in great estimation by the natives. We have another species which the Karens call *Wet-thit-khya* or the hog-chestnut, which, they say, is only acceptable for hogs, whence its specific name.

THIT-KHYA.

Spondias mangifera. This fruit is rather unpleasant and possesses a flavor like the wild mango. The natives say that, if eaten too much, it produces constipation of the bowels.

KYWA.

Sandoricum indicum. The fruit has some likeness to the mangoosteen. It is eaten by the natives in a crude state, and sometimes they use it in their curries. The fleshy pulp is very sour.

THIT-ROE.

Elæagnus conferta, or the wild olive fruit is acid, and if more than two dozens are eaten at a time it is said to be extremely hurtful.

MIN-GOO.

Pierardia sapota. This fruit is plentiful throughout Pegu. It grows in bunches and resembles loquat, (*Eriobotrya japonica*) and is very agreeable to the palate.

KUN-NA-KA-ZOE.

Scheleichera. This fruit has a pleasant flavor.

KYET-MOUK.

Artocarpus echinatus, or Mountain Jack. This fruit is acid and has a peculiar odor. It is a great favorite with the natives. The tree is of large stature, and delights only in localities that are not liable to inundation.

YOUNG-PAING-NAL.

Phyllanthus embelia bears a sour fruit which I have often used for a pickle.

ZEE-BYEW.

CEREALIA.

Under this head, I shall confine myself to such products only which might be supplied in abundance from Pegu.

Zea Mays is cultivated in many parts of our Province. The corns are very much used by the natives, and are prepared for food in various ways. They are unacquainted with the properties they possess for the manufacture of strong liquor.

Panicum miliaceum is a species of panic grass. The seeds produced are the common millet. The Kareens boil them with the incruated meat of the Coconut which supply them with a kind of rough

pudding. This grain formed the chief article of diet in ancient times, as it is even traceable so far back as the days of the prophet Ezekiel, when he was commanded to gather beans, lentiles, millet &c., to make them into bread for his sustenance.

Bambusa. The natives gather the seeds when they are driven into the position of *necessitas non habet leges*.

WAH. In Goozerat district, I understand, they are eagerly, and at all times, sought after by the natives, and constitute a sort of revenue. They resemble wheat when grounded, and has been alleged to make a delicate kind of bread.

Oriza sativa. Rice, which is the great object of husbandry, thrives luxurantly throughout the Province, the climate and soil, however, have influenced it to an endless diversity. To make Pegu the

granary of the world, it would, in my opinion, be desirable to encourage emigration, as the inhabitants of our Province are certainly scanty, having met with a check in 1852-53, when nearly one fifth perished by famine. Since our occupation, various estimates have been made of the approximate population, and only in 1855 it was ascertained with tolerable precision. To render the subject more intelligent, I subjoin the following table.

No.	District names.	Approximate areas in square miles.	● Approximate population.	Souls per Square mile.
1.	Rangoon,	9,800	1,37,130	14
2	Bassein,	8,900	1,16,939	13
3	Prome,	5,500	70,000	12
4	Henzada,	2,200	70,632	31
5	Tharawadie,	1,950	65,129	33
6	Toung-hoo,	3,900	31,802	8

The sources of supply of the cultivators are greatly accessible. The Coromandel coasts are swarming with a population which require only greater facilities of communication.

That Pegu might be made a garden of happiness and abundance, no one who has travelled through the country can doubt. Indeed, Captain Sparks in his able speech delivered at the meeting, held in honor of Lord Dalhousie, remarked.—

“To the fertility of the soil I can bear the strongest and most conclusive testimony. During the last harvest I have been engaged in the prosecution of inquiries connected with the assessment of the land revenue. In the course of these proceedings I have caused the standing crops in many localities to be reaped, threshed and measured on the ground before my eyes. The result has been that I estimate the average produce of many thousands of acres in the vicinity of Rangoon at not less than 80 baskets of paddy, equal to 1 ton 3 cwt. of rice per acre; whilst in some places it rose to the astonishing quantity of 112 baskets equal to 1 ton, 12 cwt. of rice per acre. That is to say, land which is never manured or rested and reinvigorated by a rotation of crops, yields to the husbandman, in return for his rude and careless labor, a hundredfold. If an English farmer possessed land of this description, I imagine he would feel considerable surprise were he to hear it called a desert! After some experience in each of the three Burmese provinces, I have no hesitation in stating my conviction that the rice lands of Pegu excel in fertility those of either Tenasserim or the world-renowned Arracan. That in spite of the undenied present scantiness of our population, we have still sufficient hands to bring a tolerably wide extent of land under cultivation is proved by the fact that during this year, in this one district of Rangoon alone 140,060 acres have been tilled and that since the harvest 27,715 tons of rice have been shipped to all parts of the world from this port alone, besides many shiploads which have gone from Bassein, and an immense quantity which has been exported across the frontier into Burmah Proper, of which I regret I have been unable to obtain a return.”

ZOOLOGY

OF

PEGU

MAMMALIA.

The *Mammalia* which occurs in Pegu, opens a wide field to the Naturalist. I shall, however, notice the principal objects of interest in the respective animal genera.

QUADRUMANA.

Nycticebus tardigradus. The Burmese call it the *Myouk-moung-ma*.

MYOUK-MOUNG-MA. The Kareens say that the retreat of this animal is discovered by its miserable cries. It walks slowly, and is said to travel no more than seventy cubits in a week.

" *Cercopithecus cynomolgus* inhabits the Sunderbunds, and is the most common of all the species in the Province. It is easily tamed.

Hylobates hoolock lives in a company, and inhabits the teak forests. I came across a great number near Kanee village in Tounghoo district. The Burmese allege that it is very fierce, untameable, and bites dreadfully. The flesh is highly prized by the Kareens.

Presbytes Barbei. The natives call it the "white eyelid monkey" because it has a white circle around the eyes, MYOUK-MYET-KWIN-BYEW. and look upon it as the most beautiful of the *quadrumana* tribe. It inhabits our forests. I have been informed that in Wajee and Yaigyaw choungs, in the Bassein district, it is found in great numbers.

Besides the above, there are, I have been informed, five cinereous species, but not having met with them, I have refrained from their enumeration.

CARNIVORA.

Tigris regalis. In its general temper and disposition, the tiger of Pegu is savage and ferocious. It inhabits our forest districts. If it has once tasted human blood, it frequently commits ravages of the most appalling kind. A Kareen, whilst I was in Tabbee *Sakan* in 1855, informed me that about two years ago a "tiger man-eater" was the cause of a great alarm. His nephew having occasion to pass through the district, was compelled to remain in a *toungya* for three days awaiting an escort, and, during the whole time, he was said to think of nothing else but the certainty that his destiny was to perish by the tiger. Upon his uncle casually passing by the way, he joined him. Entering into conversation with the latter, he told him that he was certain that his fate was to die, and so tediously harped upon the matter, during several miles, that at last he was told to hold his tongue. Scarcely had he done so, the tiger in question sprung upon and walked off with the fatalist, who was only heard to utter one piercing cry. This case seems to me somewhat peculiar.

Felis leopardus. There are two or three kinds, and form a large class of tenants of our jungle. They are temperate in their habits and easily climb trees.

Felis Chaus. Its tail is long and slender; ears long, pointed, and externally of a lively red color, with short brown tufts. The prevailing color is a yellowish-gray. It is a fierce and subtle creature, and possesses all the traits of the animals of the cat kind. It preys upon jungle fowls, peacocks, and other birds, which it is capable of surprising even on the tops of the highest tree.

Felis domestica. This domestic cat is found almost in every house throughout Pegu.

Felis javanensis, or tiger cat, is found in great numbers, and is supposed by the natives to be of the domestic kind that had run wild.

Canis rutilis generally inhabits caverns, from whence it issues, under cover of the night, to prowl for food.

The species is gregarious, not to say from any social principles, as from a greediness of disposition, and a gluttonous instinct, which induces many to assemble even over a scanty and insufficient prey. It feeds on the smaller ani-

mals, fruits, and carcasses. The Burmese call it "wild dog." I have found it very common in Prome district, especially in Oak-shit-toung village, and during my stay there, the vicinity of my camp resounded with nocturnal howlings. It is said that, when exposed to great distress for want of food, it destroys any domestic animal, even in the midst of populated villages.

Canis familiaris, or domestic dogs, are generally of the most miserable and half-starved creatures uncared for.

KHWAH. They rove about in villages for food without molestation, their numbers being kept down

only by starvation and disease.

Ursus malayanus is found in all the mountains and unsettled regions, and is peculiarly abundant in Pegu or Zamayee

WET-WOON. district. Mr. Raphael, of the Forest Department, found a cub there, and brought it to Rangoon.

It had all the peculiarity that characterized the *Ursus malayanus* or Malay bear. This tribe is not ferocious, nor does it attack man without provocation. It is very fond of nuts and esculent roots, and sometimes injures the toungyas of the poor Kareens, by its excursions in search of potatoes, which are its favorite article of food.

Viverra malaccensis is sufficiently abundant. I have found it spread over Yin-dike-quin in Rangoon district.

KYOUNG-KA-DOE. It is much sought after by the natives, for the unctuous odoriferous matter which enters into their *Materia Medica*, and is found in the orifice leading to a duct between the anus and genitals.

Paguma trivirgata is an inveterate enemy of rats, and is a good mouser, on which account the Burmese domesticate it.

KYOUNG-NAH-GAH.

Viverra zibetha. This is a very active animal, springing on its prey with great agility. Its usual haunts are the teak forests, and its dens are generally in the hollows of decayed trees.

KYOUNG-MYIN.

Lutra leptonyx is an animal which is found in considerable numbers in the Rangoon district, where its residence is in burrows. We may form some idea of the number of the species, when we

HPYAN.

learn, that each burrow contains several occupants, and that often as many as fifteen.

Paradoxurus Musanga is very common. Its flesh is considered a great delicacy by the Shans.

Urva cancrivora belongs to the family of *Ichneumon* weasel, or Pharoah's rat. The Phoungyees domesticate it for the purpose of keeping away serpents from their Kyongs. It has been affirmed, that animal poisons have no effect on it; a fact which renders it valuable to destroy a great number of noxious reptiles. This animal is also noted for its exquisite scent in tracing the spots where turtles, or crocodiles, deposit their eggs.

PACHYDERMATA.

Elephas indicus. While the Province was under the Burmese rule, the natives entrapped this animal alive in pitfalls, or drove it into enclosures. They never used it as a beast of burthen. Wild elephants are inhabitants of our forests, both in the plains and along the hilly wilderness, but in the former they are found in a gregarious state.

Rhinoceros sumatranus is well known to the Burmese as *kyan-shaw*. They say that it is abundant in all the deep forests. In size it is next to the Elephant, but is a solitary and lazy animal, delighting in the shady forests adjoining choungs and miry swampy localities. The Kareens dread it so much, that they very seldom utter its name without placing their hands to their mouths and exclaiming *Oung-mai*.

Rhinoceros unicornis. Like us, the Burmese have a distinct name for this animal. They call it *kyan-sen*, and it is said to be inferior in size to the preceding. It does not hide itself, as wild beasts generally do, as if conscious of meeting with superiority of strength; it lies at ease among large spreading shady trees near the clearest and deepest streams, or the largest stagnant pools of the purest water. Notwithstanding this it is in itself as dirty and slovenly as it is fierce, brutal, and indocile. I have often seen traces of large trees being divided into laths, the work of its horn. It is sometimes hunted, by the *Moke-soes*, and the flesh is held as a delicacy by the Burmese not inferior to pork.

Sus indicus. It is smaller and smoother than the European species. It inhabits swamps and the wooded banks of choungs, and is generally hunted for its flesh. The natives in Bawnee district catch it alive by a noose made with the bark of *Hibiscus macrophylla*. It commits great depredations to rice cultivation.

Tapirus malayanus is sufficiently abundant in our forests. The Kareens assured me that the skin is so very thick as to resist arrows and musket balls.

INSECTIVORA.

Sorex Peyrotettii. This is a different animal from that of North America, which yields an oily perfume of musk. Ours inhabits houses and emits an offensive odor which enables persons to trace its haunts.

KYWET-SOKE.

EDENTATA.

Manis Javanica. In the Rangoon district, it is comparatively scarce, but in Tharawadie it is found in considerable numbers in the plains, and on the banks of the Yainoay, in the Bawnee district, it is also very common. Its residence is generally among heaps of timber, or in holes made by other animals. The species found is distinguished for short tail; and, like the Malacca kind, it erects when irritated, and rolls when attacked. The skin and flesh enter into the Chinese *Materia Medica*. The Burmese give out that these animals know the names of every individual, and are able to counterfeit the human voice, and should any one imprudently answer their call in the jungle, death would be the consequence. Hence a Kareen, or a Burman, when he finds any of his party astray, makes only a yell, and the other answers him in the same manner.

THIN-GWAI-JAT.

CHEIROPTERA.

Pteropus edulis. This large bat is numerous, especially in Pahdat, in the Syriam district; the wings when extended, measure four or five feet. It lives on fruits. The flesh is held by the

LIN-WET.

Burmese not only as an esculent and delicate, but prize it as a special remedy for both the humid and dry asthma.

Besides the *Pteropus edulis*, there is another undescribed bat of the smallest kind. It enters houses in the night, and freely indulges in aerial circuits over the head to feed on moths and insects.

RODENTIA.

Histrix leucurus. We have two species of this animal. They are indiscriminately called porcupines by Europeans, but are carefully distinguished with proper names by the Burmese, as *Phyu-akoung-gyee* and *Phyu-akoung-ngai*. Both are highly prized by the Kareens for the sake of their flesh and quill, the latter is very extensively and ingeniously employed by them as ornaments for dress. Their excrement enters into the Burmese *Materia Medica* for the cure of diarrhoea.

Arvicola, or the field mouse, is found in abundance throughout the Province, and as its name implies, prefers the paddy fields to other localities. It is said by the Burmese to be very prolific. It invades the rice plantations, consumes vast quantities of paddy, and destroys nearly as much as it eats, by breaking the plants and scattering them on the ground.

Sciurus giganteus is as large as a cat. I have found it in abundance about Nayoke-koun choung in Phoungyee valley.

Pteromys petaurista. This large flying squirrel has been very appropriately named by the Burmese, and from their description it accords with the species given here.

Sciurus pygerthrus inhabits our Province, and is numerous. It is very prolific, and the woods and fields might be truly said to be alive with it.

Sciurus Bendmorei named after the discoverer Major Bendmore, is a large striped squirrel, which is said to be met with in Tavoy and Mergui, is also found in our forests, and is peculiarly abundant in Pahdat in Syriam district.

Mus bandicota generally infests the kitchen, and is of an enormous size, very daring and mischievous. It is very destructive to poultry, and I have known it to seize fowls in the night on their perches.

Mus rufescens is found in and about houses, and is very destructive to furniture, books, and clothes ; attracted by the smell of victuals, it could make its way into any box, meat safe &c.

SOLIDUNGULA.

Equus caballus. The indigenous breed of this animal, if Pegu can boast of any such, is small and hardy. To me, however, it has ever been doubtful, whether the breed be not a degenerate race from some supply obtained, at a very remote period, from the east of Bengal. It is generally twelve hands high, and commonly sold at from two to three hundred Rupees, if it is of a handsome color and well formed. It is chiefly used by the Burmese for the saddle, and never as a beast of burthen or for draught. The male animal is generally castrated by them.

RUMINANTIA.

Capra Hircus. It is said that, prior to annexation, the Rangoon market was abundantly supplied with goats—I believe for the purpose of being clandestinely sold to the Mogul, Christian, and Mahomedan residents—from Yai-nan-choung a village situated near the Petroleum wells.

Bos indicus. Both the male and female oxen are taken care of by the Burmese. The former is commonly emasculated and is used in labor.

Bubalus arnee, or buffalo, possesses superior strength to the preceding, but, however, it is slow, impatient of heat, and therefore incapable of long duration. The Burmese, for the most part, confine it to agricultural labor. I have often met what, at a distance, I conceived to be water fowls floating down with the stream, but which, on a nearer approach, were found to be these animals descending and

crossing the choung at the same time. These creatures so delight in water, that they immerse every part of their body beneath the surface ; and their horns being depressed as well as turned back, no part of them but the eyes is to be seen while swimming.

Bos gaurus is found in all the forests. The Kareens consider it to be the wild ox, but there is every reason to believe that it differs specifically.

PROUN.

Bos sondaicus. It wanders over the country in herds in search of food. It is remarkable for strength and fierceness. To the natives it is almost invaluable, as it supplies a large part of the food used by them.

TSAING.

Ovis aries are little known in the domestic economy of the Burmese. Since annexation, these animals have been introduced, and there is every reason to believe, that they might be kept up if not bred.

THOE.

Cervus porcinus. I always understood that this animal inhabits only the plains, but I have found it more than once in the hilly region of Thounzai.

DAH-YAI.

The Burmese have a mode of hunting it. The hunter in a dark night parades with a lighted torch fixed on his head, a bell in one hand and either his sword or musket in the other, but the former is more commonly used. The animal astounded and attracted by the noise and glare, approaches the man without fear, or stands with astonishment, and is thus cut down or shot without difficulty.

Chevrotain adulte is the smallest of the deer kind, and is sufficiently abundant near Thaneo choung and in the plains of Zountoo. It is also to be seen in the Tharawadie and Rangoon districts.

YONE.

It is very attentive to every alarm, and catches the most remote sounds. Its pace is a kind of gallop, or quick succession of leaps. The flesh is universally esteemed by the natives.

Rusa Equina. I have met with a great number of these animals in the Pegu or Zamayee forests about Kodoogwai choung. The flesh is always to be had in the Rangoon bazars.

HSAT.

Stylloceros Muntjak. I have heard its bleat almost every night whilst out on tour.

GYEE.

Cervus frontalis. This species has been seen in the Pegu or
Zamayee forests two miles from Kodoogwai
THA-MIN. choung. It is a beautiful, shy, and timorous
animal, of wonderful fleetness, and the acute-
ness of its sight renders it extremely difficult of approach. It
feeds on Bamboo leaves, twigs, and branches of trees. The skin is
said to be hard.

CETACEA.

Delphinus plumbeus is seen in the Irrawadie, and found even as
far as Ava. During my stay at Yaigyeon,
LAH-BINE. I saw some Burmese cooking the flesh of
this animal, which they informed me was
course and tasted something like pork. From the fat is obtained a
considerable quantity of oil which is reckoned by the native doctors
to cure, when rubbed over, all kinds of eruptions, or the result of
violence as a bruise.

ORNITHOLOGY.

I shall, under the various heads into which this science is divid-
ed, describe the principal animals of the feathered race, and although
my observation of each will be brief, they will, it is hoped,
be found to comprise an epitomè of all the most striking features of
this portion of the animal kingdom in Pegu.

RAPTORES.

Vultur leuconotus. This is a black kind of vulture with a head
bare of feathers. It is scattered all over the
LAH-DAH. country feeding on carcasses however putrid.
Goldsmith has pronounced it an unclean, cruel,
and indolent bird, feeding on carrion and only deserving of contempt ;
notwithstanding which, it is protected in Egypt by laws, on account of
its usefulness in keeping the air free from pestilential taint, by acting
the part of a scavenger.

Pandion haliaetus. This is said to be an inhabitant of the
sea coast, but I have found a great number
WON-LEI. in Dille-ou plains, in Bawnee district, near
the ~~ins~~. The district people informed me
that it darts down with surprising dexterity upon the fishes.

Milvus rotundicaudatus is the white headed kite. It inhabits our Province ; body ferruginous, tail forked, head whitish and flies placidly. It feeds on poultry.

Milvus ater is very common about large towns. It rises to a towering height, hangs apparently motionless in the sky, and darts down with great velocity upon carrion, mice, small birds, and chickens.

Falco tinnunculus. This is a pretty bird with yellow legs, rounded tail, purplish red back with black spots and brown streaked breast. It was most usually employed in Europe, in ancient

times, in catching game. It is found throughout our forest district.

Nisaster badius is found in the Province.

Astur barbatus. This is the Revd. Mr. Barbe's goshawk, and resembles very much the European species formerly much used in falconry.

Haliæetus Macei. We have two or three varieties that inhabit the marshes and feed altogether on the funny tribes. A great number may be seen flying in curved lines, and suddenly checking their course, they descend as rapid as an arrow into the water, and dipping the feet seize a fish and levelling the neck again for flight they struggle with the prey and mount into the air with screams of exultation.

Strix Hardwickii inhabits our forests, and is said to conceal itself in the day in the cavity of decayed trees. Both the Kareens and Yaibanés say that the screech of this bird is a presage of some calamity. They have been, probably, led to this superstition on account of the harsh note, which makes it more appalling and hideous in the darkness and silence of the night. The Cingalese too, are said to consider the cry of this bird as a presage of death or misfortune, unless they adopt a charm to avert its fatal summons.

Strix flammea. The Burmese call it *Nghet-soe* or an ominous bird. If any of them are ill, and its cries are heard about the house, in an instant all is terror; the death screech has been sounded, and they believe the sick man has received his solemn warning. But should he recover, the bird gets no credit for it. It utters a

kind of hissing and mournful cry. It is found in large numbers, and is remarkable for its elegant plumage.

Bubo macrocephala inhabits the Province, and devours greedily vast quantities of field rats and mice which make their appearance after harvest, and swarm in every crack and fissure.

DEE-DOKE.

Scops letitia is the smallest of the owl tribe, but the prettiest, possessing feathers beautifully variegated with brown, black, and a slight tinge of red.

ZEE-GWET.

DENTIROSTRES.

Orthotomus longicaudata. This is a small bird commonly known as the tailor bird, on account of the peculiar construction of its nest which it performs by using the bill, instead of a needle, and vegetable fibres for thread.

NHAN-PFEE-ZOKE.

Oriolus melanocephalus. The Burmese very properly call it the "yellow bird." It is of a saffron color, and remarkable for the gayety of its song. It is an exceedingly active, sprightly, and restless bird, it is on the ground—on the tree—flying and carolling in its hurried manner, in almost one and the same time.

NGHET-WAH.

Lanius collurioideus is occasionally seen in the Province.

Merula leucogaster is a pretty bird, with a light colored body and a white belly. It is very common in the Prome district, especially on the Akouk-toung hills, where it delights the ear with the evening song. The Burmese have no name for it.

Edolius paradiseus. This is a fine singing bird. Its notes are shrill and lively. Whenever it is protected, it shows its confidence by its numbers and familiarity. The Burmese call it *Nghet-taw*, and from the name bestowed on it, it is considered by them a bird of some importance.

NGHET-TAW.

Dicrurus macrocerus is known as the king-crow, from the peculiar sovereign sway it exercises over the crows. It is a common bird of our Province.

NGHET-TAW.

Dicrurus intermedius is a smaller species than the preceding.

NGHET-TAW.

Garrulus pectoralis is a noisy bird, and belongs to the babblers.

Pericrocotus roseus. This is a very handsome bird, and very properly called by the Burmese *Nghet-min-tha* or princely bird.

BOOT. *Bulboul*. Four species inhabit our Province, namely,

BOOT-WAH. *Pycnonotus Finlaysoni*.

BOOT-WAH. *P. melanocephalus*.

BOOT-HPIN-NEE. *P. Jocosus*.

P. nigropileus.

Besides these, there may be many other species which have escaped my notice.

TENUIROSTRES.

Upupa epops is often seen in the dry season. Its head is covered with an enormous tuft of feathers, which it occasionally erects and depresses. It is decidedly a bird of passage.

Arachnothera inornata is a pretty bird, and flutters about the flowers, from which it extracts the sweet while on the wing.

Nectarinia jugularis is perhaps the most elegant, both for the form and brilliancy of its feathers. Besides this species there are

Nectarinia asiatica.

N. Gouldiae.

N. minima.

N. Phayrei.

All these are indiscriminately called by the Burmese *pan-soke-nghet* which signifies birds that suck flowers.

RASORES.

Euplocomus lineatus. This is the common pheasant. Our Province is replete with this species. It feeds on all kinds of grain and herbage. The hen constructs a rude nest on the ground, which I have very often, in my travels, come across, and it generally contained from twelve to twenty eggs.

Phasianus fasciatus. Major Phayre found this superb pheasant in Arracan. Our forests abound with this species, but not so much as the preceeding. Its favorite places of resort are the hills.

YEET-MIN.

Gallus ferrugineus is abundant throughout the Province. It is shy, but is easily discoverable by the noise it makes in crowing and clapping its wings, which may be heard at some distance.

Pavo muticus. Although it is called by some the Japan peacock, yet it inhabits our Province in abundance, so much so that it is sure to be found in the neighbourhood of villages. It is remarkable for the beauty of its plumage, and particularly its tail, which is adorned with rich and variegated colors, but the green is of different shades, and is the most predominant. The first peacock that was honored with a public exhibition at Athens was, probably, of this species. It was asserted by the ancient writers, that many people came thither from Macedon to be spectators of it.

Pardix Phayrei. This is called Major Phayre's partridge and *Kha* of the Burmese. It is a general inhabitant of the teak forests.

Turtur suratensis. is common in the Province, and is sometimes seen in flocks of twenty. The note is singularly tender, and is uttered wantonly when by the side of its mate, or invites her by *coo* to some favorite, retired, and shady retreat.

On this account it has been, from time immemorial, represented as the most perfect emblem of connubial attachment and constancy. It is the turtle dove so often mentioned in the old Testament. It was the usual offering of the poor in the rites of the Hebrew law, a circumstance indicating the humble station of the Blessed Virgin Mary, since, at her purification, she offered a pair of turtle doves instead of a lamb.

Gyo. *Turtur meena* is not uncommon.

Columba indica. This is the ground pigeon, whose color is dark green, bills and legs red. The Province is well distributed with it.

MYAI-WOOT-KHO. *Treron bicincta* is a common green pigeon. Its flesh is excellent.

Ngoo.

CONIROSTRES.

Buceros cavatus. I have found it in the teak forests. Although it soars high, still it cannot escape notice on account of the sound of its wings. The fide-

YONE-YIN.

lity of this bird to its mate is considered by the natives as unquestionable. •

YONE-YIN-KAP-PA-LEE. *Buceros pucoran*. The color of this horn-bill is black.

AUK-CHIN. *Buceros albirostris* is the smallest of the horn-bills.

TSAH-GAH-LAY. *Passer indicus* is a common sparrow of the Province.

LAI-TSAH-GAH-LAY. *Amadina striata* is seen in great numbers, especially in fields producing the greatest paddy.

Euplectes Phillipensis. I have very often come across the empty long nests of this bird hung on the branches of the highest wood oil trees or *Myoul-shaw*, a species of *Dalbergia*. The bird is about the size of a sparrow with a yellow head.

Corvus splendens is the common crow, its manner is bold, but mingled with caution. It is the custom of this bird to make a sudden dart on persons, especially those who molest its nest, by inflicting the momentum of the blow, with its powerful beak, and producing sometimes a deep wound.

THAH-LEE-GAH. *Gracula religiosa*, or the talking mynah, is often seen in native houses confined in a cage.

Sturnus contra is very numerous. It feeds on insects and worms. The Burmese say that the flesh is slightly bitter.

ZAYET. *Sturnia malabarica*. Our Province is replet with this bird. It has a white head.

Ampeliceps coronatus. One of our Catholic Missionaries, the Revd. Mr. Barbe, found this bird in the Yea forests. It also abounds in ours.

ZA-YET-GYEE. *Acridotheres cristatellus*. The Burmese call this bird the "big mynah."

FISSIROSTRES.

HSEN-PEING-NYEN. *Halcyon Ameuropterus* chiefly frequents choungs, and lives on fishes, which it catches with dexterity.

Alcedo sinensis. I have found this bird in great numbers about the Koon rapids in the 'Toung-hoo district. It PEING-NYEN-A KOUNG- appears to delight in murmuring streams and GYEE. in the falls, not however merely to soothe its ears, but for gratification somewhat more substantial. Amidst the roar of the falls, it sits perched upon an overhanging bough for fish; which, with a sudden circular plunge, it sweeps from the native element and swallows it in an instant. The feathers of this bird are extensively exported for the China Market, where they meet a ready sale.

NGHET-KHAH. *Coracias affinis* is, I believe, a migratory, gregarious, and sonorous bird.

Caprimulgus macrurus. The bill of this bird is slightly curved and very small. It wanders only in the evening in search of insects. The flight is generally low, as the insects it hunts are usually found in a low elevation. It has the same native name (*Myai-woot*) as the snipe, probably the Burmese see no difference. To us they differ as black from white, as one is a wading and the other a wide mouthed bird.

Hirundo rustica or common swallow, is remarkable for performing its various functions in the air, and for this P'YAN-LIWA. aerial life its structure is beautifully adapted, enlivening, by its beautiful form, the banks of choungs and rivers, whilst over tangled copses, and across flowery meads, it wheels in its fullness of delight.

NGHET-PA-ZIN-DOE. *Merops veridis* is very common, and found throughout the Province.

SCANSORES.

Bucco indicus is found in great numbers in NGHET-PA-DEING. the Province. The Burmese call it the "goldsmith bird."

Bucco trinaculatus is a pretty bird, and has hitherto been supposed to be confined only to Arracan. I NGHET-PA-DEING. have found it to be also an inhabitant of the Pegu Province.

Palæornis Alexandrinus. I believe Alexander was the first person who introduced this magnificent bird into Europe. Revd. Dr. Mason says that "it is the bird that was sent to Alexander from K'YET-TAW. Ceylon; and hence its specific name."

Palæornis torquatus frequents paddy fields in flocks of twenty. It seldom survives if kept confined in a cage.

Palæornis nigrirostris is found in company. I once came across an army of these birds in *Kyet-too-ywai-quin* in Phoungyee valley. The ground appeared at a distance as if covered with a carpet of the richest green.

Loriculus vernalis is found in the forests. I recollect once coming across a great number in Pahdat on a mangoo tree, within the premises of a Kyoung where they appeared, under the protection of the old Phoungyee, to be quite at home.

Cuculus orientalis is often seen in the forests, but I have never found them more numerous than in the Kance forests in Young-hoo district.

Melias tristis is distributed rather sparingly. It is remarkable for the length of its tail.

Picus flavinucha. A person travelling in the interior, hears its screams from the adjoining woods, rattling on the limbs of trees. The Burmese name signifies "woodpecker," like the English. The

species of this climbing bird constitute a large and interesting class. The few following came under my observation, but I am confident there are a great many yet to be discovered.

Picus (meiglyptes) jugularis.

P. ocipitalis.

P. (Tiga) intermedius.

GRALLATORES.

Grus antigone. I have not seen this bird, but from the description given me by the Burmese, I conclude it to be this species. Its name is Gyo-gya. It is one of the watchful inhabitants of salt marshes.

Ardea Alba. My friend Mr. John Slater brought me this bird from Kyoung-tan where he found it in large numbers. It is without doubt the species given here.

Ciconia argala is an inhabitant of our Province, and remarkable for the fineness of its plumage.

Piuranius spinus is a common bird.
TEE-TEE-DO, The Burmese call it *Tee-teg-do* in imitation of its note.

Gallinula jaranica. It has been represented to me by Mr. Slater
YAI-KYET. that it is found in great abundance in Twan-
tay, and from whence he brought me a live one.

Scolopax heterura abounds in every part of the Province where
there are marshes, and we are informed by
MYAI-WOOT. Mr. Crawford, that even it "is sufficiently
abundant in Ava."

Numenius arquata is mentioned as inhabiting the marshes.

NATATORIES.

Dendrocygna major. I have often come across
TAW-WOON-BI. wild ducks in the fields when covered with
water.

Dendrocygna arcuata is another constant at-
TSEET-SSE-TEE. tendant on inundated plains.

Plotus Vaillantii is common about the chouggs. It is more
familiarly known as the snake bird, and pro-
bably derived this name from the singular
DAING-NGYEE. form of its head and neck, which at a dis-
tance might be mistaken for a serpent. The Burmese call it *Daing-nyee*.
They informed me that this bird delights in localities where a root
or a branch of a tree projects over and dips into the water; these situa-
tions being convenient resting places for the purpose of sunning and
preening itself.

ICHTHYOLOGY.

It is an incontrovertible fact, that the rivers, *inns*, &c, of Pegu,
teem with a variety of the funny tribes; this statement is too true
to be disputed. In fact, our *Ichthyology* is yet in its infancy.
Nevertheless, I shall endeavor to contribute some few notes I made
which I do not pretend to completeness, towards the elucida-
tion of this subject. It is worthy of remark here, that though on the
whole the fish brought to the Rangoon market cannot be com-
pared with such as we see at Maulmain, there are still some kinds
which might please the most dainty epicure.

It has been alleged that among the various kinds of food which
are administered for the subsistence of man, fish is one of the most

wholesome and abundant; and such is its moral influence on population, that it has been generally admitted the Celestial empire is indebted to the exuberant immensity of its inhabitants to the astonishing quantities of fish with which they are supplied. Pegu, however, may boast of a greater and choicer variety than even China, as will be seen from my brief description under this head.

MACROLEPTES.

Mugil. Our bazars are full with this fish in the months of December and January. It inhabits the salt-water, and, in particular, haunts those places that have influxes of fresh water.

KAH-BAI-LOO. *Mugil subviridis* is never found in salt-water, but abounds in the *inns*.

NGA-LONE. *Mugil cypsalotus* is also a species of Mullet. It is found in the Irrawadie river in abundance from Yangyeen sawah as far as Ava.

Corvinus coitor is a species of Indian whiting, and is found both in the salt and sweet waters. This fish is generally salted by the Burmese. They call it "blood sucker fish."

NGA-POKE-THIN. *Perca* is a species of the perch, though some consider it to be of the bream kind. The Pegu species is generally of a dark color approaching to black.

Polynemus paradiscus is the most esteemed fish of the Europeans. They call it the mangoe fish, probably on account of its appearing about the time that mangoes first come into season, it is said by the Burmese that it comes with the tide. Its flesh is fine, but its roe is deservedly esteemed to be delicious.

Ophiocephalus. We have four species of this tribe. The native names are

Nga-yan.

Nga-yan-panaw.

Nga-yan-dine.

Nga-yan-goung-doe.

The species referred to, abound in fresh water *inns*, and are generally bruised by the natives for *ngapee*, a condiment of universal use throughout the Province.

NGA-PAH-LWAI.

Silago acuta. I believe it belongs to the genus *Silago*. The Burmese call it "the flute fish."

PIN-LAI-NGA-BIAI-MAH. Chinese are very fond of this fish for which they pay an extravagant price, so that they almost monopolise it.

MICROLEPTES.

KAH-THA-BOE.

Gobius giuriv is a salt water fish about from five to seven inches long.

NGA-YIN.

Macrognaathus undulatus is a species of *Nga-mway-doe*. I have seldom found it in the bazars.

NGA-ZIN.

Periophtha' nus. This belongs to the Goby tribe, and is found in abundance about the Puzzoondown creek.

Rhynchobdella ocillata is about from six to eight inches long, and is a great favorite of the Burmese as an article of diet and is known to them as *Nga-mway-doe*.

Under this name we have also the *Mastacembalus* which resembles very much each other.

Equula ruconius is a salt water fish of small size.

CYPRININÆ.

Cirrinus calabasu is a sweet water fish. I believe it is scarce, but we have another species of the same tribe, namely, *Cirrinus nandina* which is not rare.

NGA-NET-PYAH.

Cyprinus Rohita is a species of the carp, and is abundant in the Irrawadie river, and in all the waters connected with it, though it is found more numerous in the former. It is said to thrive

NGA-THAING.

greatly in the *ins*. Immense quantities are cured by the Burmese for exportation by being sun dried, after which they are smoked for a short time over a fire made of chaff.

Barbus progeneius is not very abundant. The flesh is perfectly wholesome and well tasted, but of no great delicacy.

Systemus. We have, I believe, four species in our Province, and are known to the natives as

Nga-mee-mai.

Nga-khong-ma.

Nga-sin-byew.

CLUPINÆ.

Alosa ilisha. It seems to be a midway between a mackarel and a salmon, and whether for form, general appearance, or flavor, is perhaps, the richest fish with which I am acquainted. It, however, abounds with small bones which are very troublesome. It is very fat and the Burmese sometimes roast it, and when brodght in that state to market, and afterwards baked at home in vinegar is remarkably fine. It is said by the natives that this fish grows to a very large size, immediately within the reach of the tide and comes to perfection about the latter end of the rains.

NGA-BYAH.

Pellona affinis is a species of herring frequently seen in our market.

NGA-HPAJ.

Notopterus Kapiwat is not a rare fish, and inhabits the *inns*.

PLEURONECTIDÆ.

Plagusia. It is of a diminutive size and is sometimes to be had at Rangoon; The Burmese call it *Khway-sha* or "dog's tongue." It is caught in brackish water.

KHWAY-SHA

Brachirus is found in the Irrawadie and is much esteemed by the Chinese for its flesh, which has a place in their *Materia Medica*. In the dry season our bazars are filled with this fish.

ESOCINÆ.

Belone cancila. I have found it in abundance in the *inns*. The upper jaw is longer than the lower. We have also another genus of this tribe viz. *Belone condimaculata*.

NGA-HPOUNG-YOE.

SILURIDÆ.

Pimelodus is the most common cat fish. The species of this tribe are very numerous, without scale, of all colors and sizes. I believe we have four varieties of this genus. The Burmese call them,

NGA-DAN.

Nga-dan.

Nga-yone.

Nga-myin-oak-pha.

Nga-aik.

Besides these, I have very often come across two or three species of

NGA-BAT.

Silurus.

NGA-KYOUNG.

Sorubium.

NGA-MYIN-YIN.

Agonostomus.

and to this list I may add *Clarias magory* and *C. punctatus*.

CARTILAGINES.

Pristis is a species of sawfish. One was brought to me in a state of decomposition which had a snout of about two feet. Being far advanced, I could only discern that the body above was blackish and beneath white.

Squalus. I have been informed that this dreadful and rapacious tribe sometimes come up with the tide as far as Tsanyoay and wanders and devours whatever comes in its way.

NGA-MON.

PLECTOGNATAES.

Lagocephalus is a horrible deformed fish; nay a singular *lusus nature*. It is remarkably fat and has a depressed body. The Burmese say that it is sluggish and swims with difficulty.

NGA-BOO-DIN.

APODES.

Anguilla bicolor inhabits every where in fresh waters, I have seen some about six feet in length. There are several other besides, and being uncertain of their species. I have refrained from inserting them.

NGA-LIN-BAN.

REPTILES.

Reptiles or animals of the turtle, lizard, and serpent class, are, of course, numerous in the Pegu Province.

CHELONIA.

Cistudo amboinensis is found in almost every paddy field, though it is rarely seen in standing waters, and then, perhaps, only in a state of emigration.

LAI-LAKE.

Testudo radiata. I met with this species in our tour in 1855 in *Nat-tween-sakan* about fourteen miles S. E.

LAKE-GOUNG-NEE. of Ingouk village, and north of the City of Tounghoo.

Testudo geometrica. This is, I, believe, *toung-lake* of Arracan.

TOUNG-LAKE.

It inhabits high land and the Kareens informed me that they catch it in great numbers especially in the season when the mushrooms make their appearance which this land tortoise is very fond of.

Chelonia virgata is said to be found in considerable variety and number about the coast. Epicures, who are

LAKE.

dainty in their food, consider its flesh a great delicacy.

SAURIA.

Calotes versicolor is the common blood sucker, and remarkable for changing in half an hour to all the colors of

POKE-THIN.

the prism. It is, apparently, a harmless

animal, though, when caught, shows a disposition to bite. Among the favorite objects of Mr. Humboldt's study, this was one of the species he paid a particular attention. The animal—during the time of Mr. Bayard Taylor's visit to this great man—was confined in a glass box, and as it, on that occasion, opened its long tabular eyes—Mr. Humboldt was said to exclaim that a “peculiarity of this animal is its power of looking in different directions at the same time. He can turn one eye towards heaven, while the other inspects the earth. There are many clergymen who have the same power.”

Platydictylus gecko. It is well known by its cries, and from which a name—*Touk-tai*—has been given by the Burmese in imitation of its sound.

TOUK-TAI.

Hemidactylus coctai frequents the interior of houses, and may often be seen in great numbers crawling about the walls, or on the ceilings, in pursuit of the smaller and more delicate insects, which it snaps up with great dexterity and greediness. I have often amused myself in observing the sagacity and care with which it approaches its prey, and the rapidity it shows by darting forth its long tongue armed with gluten.

Euprepis rufescens. In general appearance it resembles a snake, and in internal structure a lizard. It inhabits grassy plains.

Varanus. We have in our Province, according to the Burmese account, four varieties and are called by them.

Hpoot-kyah.

Hpoot-mai.

Hpoot-hnyen.

and also another terrestrial species which I have found most abundant, and frequently seen on trees. All the preceding belong to the species *Varanus*, or monitor, and some of them are known to accompany the crocodile, or alligator; of whose approach they are said to warn the other animals by their hissing—whence their specific name.

Crocodilus vulgaris generally inhabits large rivers. Its flesh has a place in the Burmese *Materia Medica*. The eggs, scarcely larger than that of a goose,—deposited by the female in the sand—are esteemed as delicacies by some of the natives, and constitute a part of their richest meals.

Lacerta is the sand lizard, and, as its name imports, burrows in the earth. The Burmese and Kareens are extravagantly fond of its flesh, and the latter have often exchanged it with our peons for a dozen of fowls.

BATRACHIA.

Rufa melanostictus. This is a large toad. The flesh is dried by the native doctors, and is said to be a certain cure, when taken internally, for asthma. There are several kinds, but unfortunately when I came across them, I had no time to investigate, my

mind being engrossed in studying the flowers, that I had collected, or busy in condensing my notes.

OPHIDIA.

VENEMOUS SERPENTS.

Naja lutescens is armed with a poison the most deadly and horrible.

Notwithstanding which, it is generally carried about as a public show by *Alanthamas*; it dances to the sound of music. It, however, seldom bites except when irritated. The flesh is used medicinally by the Burmese. They also suffer it to abide in their houses, and supply it with food, from causes not easily determined; excepting that this serpent is ever considered to be possessed of some mysterious superhuman knowledge or power.

Bangarus candidus bites without provocation; it inhabits paddy fields.

Hydrus. This species is found in the rivers; it is the most venomous of the serpent tribe, and its bite is often speedily fatal.

Trigonocephalus gramineus. It is the green viper. Its bite is said to be fatal, but I have found that it is not often the case, particularly when proper means are resorted to for obviating the effects.

Mwai-seing. I once recollect when I was proceeding to the Puzoon-down Timber Revenue Station, with my orderly Peon Shoay Baw, we surprized a large viper of this tribe as it lay in the grass basking in the sun. When we came to rip it open, to our astonishment we found that the abdomen was filled with young ones, and when they were disengaged from the belly of the dam, they showed manifest tokens of menace and defiance.

INNOCUOUS SERPENTS.

Dryinus prasinus is of a beautiful green, and is occasionally seen twisted round the smaller boughs of trees,

Myet-shaw. whence, if disturbed, it drops with great readiness, and proceeds along the tops of the grass with admirable celerity; and, owing to the similarity of its color, scarcely allows the dazzled eye to follow its course.

Coluber korros. It is harmless and generally inhabits bamboo hedges. The flesh is eaten by the Burmese.
LIN-MWAI.

Coluber radiatus. This is a domestic snake, as it generally lives in the roofs of houses.

Tropidonotus stolatus is a water snake of a small size. I have generally found it in grassy plains. The Burmese bestow the same name as the *Dryinus prasinus*. We have also another of this species *T. schistosus*.
MYET-SHAW.

Python reticulatus. I have been informed that it grows to an enormous size, being found occasionally of eighteen, twenty, and twenty five feet in length, and of a strength so as to be able to kill deers, hogs, and other animals. Its flesh is esteemed as a delicacy by the Kareens, Yaibanese, Chins and Burmese, and is even preferred to fowls.
SAH-BAI-GYEE.

Typhlops braminus is a burrowing serpent of a foot in length and about the thickness of a thumb. Its bite is perfectly harmless.

ENTOMOLOGY.

This portion of Natural history is one of the most pleasing which can engage the attention or amuse the human mind. It seems to have even attracted the attention of man at a very early period. King Solomon is said to have written several treatises on insects, but they are all lost.

The insects of Pegu are numerous, and of great beauty. Some render us signal services, while others are noxious or totally of no service. To attempt to enumerate them would be a fruitless or impracticable task; I shall, however, make a few cursory remarks on those which I have collected and studied.

COLEOPTERA.

Lampyris. The male and female of this species differ very much from each other; the former does not emit a very luminous light, while the latter sends forth an attractive, beautiful, and phosphoric light for the purpose of alluring the mate to her company.
POE-ZANE-BYEW.

" Graceful and lithe the bamboo trees
Wave in the whispering eastern breeze ;
And when at night fireflies glow
Like drops of light on each small bough,
The ever living stars on high ;
Standing, like gems, the azure sky,
Can scarcely draw the wanderer's gaze
From the green bamboos' richer blaze."

Buprestis, or the chameleon beetle, possesses a rich and brilliant color. When it rises in the air a loud buzzing noise is heard at some distance. It subsists generally by living upon the leaves or the succulent parts of the bark of the *Acacia rugata*.

Iucanus, or the stag beetle of Pegu, is celebrated for its projecting jaws, which I found to measure from two to three inches in length.

Curculio is found on fruit trees which is very destructive to them. The female is said to pierce the mangoe fruits with her proboscis for the purpose of laying in her eggs, and I have often observed the full growth insect creeping out without appearing to have essentially injured the fruit.

Melolontha sticks to trees the leaves of which it devours. I have many times seen the natives smoke the trees, by making a kind of bonfire underneath them, and which, they allege, prevents the incursions of this insect in the garden.

Coccinella is more commonly known as the lady bird. The Pegu species has shell-like wings with about half a dozen black dots.

Lytta vesicatoria. This is the spanish fly so valuable for affording substances for blisters.*

*While these sheets were going through the Press, I observed in the " Maulmain Advertiser Office" this little creature drawing a type ten times its own weight. It is no doubt that it is endowed with a degree of strength for its own size, that at first might exceed credibility. If man possessed an equal degree of strength—bulk for bulk—with a spanish fly, the deeds of Sampson would no longer be considered as extraordinary.

ORTHOPTERA.

POE-HAUT. *Blatta*, or the cockroach, is unfortunately very common throughout Pegu. It is a disagreeable and annoying insect.

Gryllus grylotalpa is the mole cricket. It burrows in the earth in gardens or cultivated spots, and is said to be very destructive to plants &c.

Gryllus campestris is the field cricket famous for its chirping, which is as pleasing to some as it is disagreeable to others.

HNAN-BOUNG. *Mantis religiosa*. In Goa and in the Madras coast, this has been passed as a sanctimonious insect, from the singular manner in which it sits, leading one to suppose that it holds communion with the Creator of the Universe.

HNAN-BOUNG. *Truxalis*. The grasshopper of Pegu is very active in hopping, as its name implies, through the grass. It is generally vocal, and is heard much louder in the cool of the evening than during the heat of the day.

NEURÓPTERA.

CHAH. *Termes*, or white ant, is a very destructive insect to books, clothes, &c. Almost every house in the Province is more or less infested with it, and to keep mine free from it, I have often encouraged the visit of the *Platydictylus gecko* by allowing it to remain unmolested, and which, in the mean time, has a royal feast on the white ants.

PAH-ZIN. *Libella*. The dragon fly may be justly called a tyrant, as it may be seen all day hawking after insects. I have frequently during my travels seen it, whilst in a larva state, in the water of the inland streams, and which the natives assured me was the form which it assumes after the eggs have been hatched.

HYMENOPTERA.

PRAM. *Apis mellifica* is found in societies throughout Pegu. At an early period honey and wax not only became an object of serious attention to the natives, but attracted the particular notice of their Govern

ment, on account of the important objects to which they might be made subservient.

Xylocarpus has earned the name of Carpenter-bee on account of its propensity to making holes for habitation.
 PAH-DONG. This insect is furnished with an implement with which it penetrates into bamboo and timber.

Ichneumon is occasionally to be met with. It derives its existence from the destruction of some other insects on whose body the female deposits her eggs.
 PA-DOO-MIN-THA. The larva produced therefrom, preys upon the intestines of the unfortunate fosterer.

Vespa vulgaris, or the common wasp, is always to be seen in Pegu. I have been informed by the Burmese, that it forms its nest in the ground. We have another kind identical to mason wasp. It constructs its habitation on the walls, posts, and windows of houses to deposit its eggs, which contains about eight in number.
 PA-DOO.

Formica. We have a great many varieties in Pegu, all are remarkable for their unwearied diligence, their astonishing strength, or their inveterate propensity to labor. The moral intended by King Solomon in alluding to these creatures, is to avail one's self of the favorable time without delay.
 PA-WAI-SAKE.

Papilio Priamus is adorned with rich and various colors. Besides this the following few may be noted; their native names are
 LAKE-PYAH.
Lake-pyah-mai.
Lake-pyah-zain.
Lake-pyah-wah.
Lake-pyah-byew.
Lake-pyah-mai-thoo-daw.

Phalæna? It is reared by the Yaibames in general, and remarkable for producing raw silk. It is first hatched from an egg, glued by the perfect insect upon a black cloth, which the natives place for the purpose. The egg is about the size of a pin's head, from whence proceeds a caterpillar that eats, and which lastly prepares a

silken covering called chrysalis, in which, like a cloistered monk, it conceals itself, until it issues from it in the form of a perfect insect, or butter-fly. It may, however, be remarked, that the natives only suffer it to come to its complete state when they require its brood, as the silk produced from it is of a very inferior kind.

LAKE-PYAH-GYEE. *Saturnia atlas* is found in Pegu, and belongs to the family of the silk worm.

HETEROPTERA.

Cimex lectularis, or bug, is a disgusting and troublesome insect. Sleep which is so necessary after the toils of the day to arise again refreshed and vigorous, is often disturbed by this creature, and for which purpose it insinuates itself into the most secret parts of the bed and bedsteads. The Kareens effect its destruction by placing underneath their beds the leaves of *Mentha quadrifolia*, or *Blumea grandis*.

YAI-POE-HAUF. *Belostoma indica* may be frequently seen in the water. The Burmese call it "the water cockroach."

Gerris. The Pegu species runs on the surface of the water with its long legs with wonderful lightness, as scarcely to put it in motion. I have frequently examined its wings, and found them ill adapted for flying, but skipping only.

APHANIPTERA.

Pulex is the common flea remarkable for its agility. It harasses mankind and continues its depredations throughout the twelve months.

KHWAI-LAI.

DIPTERA.

Musca domestica, or the domestic fly, multiplies I believe in the rainy season: during the dry weather, it gives us very little annoyance. To this species may be added the flesh and paddy flies. The form-

YIN-GOWN.

er is very numerous and lives, as its name implies, on decomposed animal food on which it lays its eggs. The latter is said to attack paddy plants which it ravages with a vengeance.

Culex is the mosquito which enters houses especially about sunset, announcing its arrival by a sharp buzzing noise. When one is attacked by it he is speckled with blood, particularly about the forehead and back of the ears.

The Gnat is an annoying insect for inflicting wounds; it invades low and marshy situations. The face when alighted by this insect, looks as if charges of dust shot have been fired, each sting having a bloody spot; and such is its eagerness in biting that it tilts its body up almost vertically, and seems to bury its head in the flesh.

Gadfly is a different genus from the European species. The natives say that it lives entirely on blood. It attacks man and beast without discrimination.

ARACHNIDA.

Acarus, or as it is commonly called Tick, is an apterous insect. It infests trees, and shrubby plants, and when once it attaches itself to one's flesh, it is with the greatest difficulty extracted.

Aranea is the common house spider, and feeds on such insects it overpowers, which is done by entangling them in numberless ways with the thread which it throws out from the *pagilla*.

Lycosa is found in houses. When it comes in contact with our skin it causes a painful itching. I have always remarked the females carry beneath the belly a ball of eggs. We have another species (probably *Mygdia*) called *Taw-pin-goo* by the Burmese, and its bite is said to be extremely poisonous, and sometimes deadly.

Agelina navia? It constructs horizontal webs in the grass. This species is very harmless and found throughout the Province.

Scorpio, or scorpion, is armed with a virulent sting. I have been assured by the Kareens that in some instances, the sting is so poisonous as to cause death. This insect is of such a malignant nature, that it is seldom found in companies, as it devours each other. Nature seems to have formed it in every respect for a hostile life.

MYRIAPODA.

Scolopendra or centipede, is remarkable for the number of its feet. It inflicts a very painful sting which the natives allay or remove by the application of garlic—*Allium sativum*—to the part. It is generally found in thatched houses and lives also under stones. The cast skin of this insect was brought to me by a Kareen, whilst I was in Khaboung district in 1856, from which I conclude that it is probable that it changes its skin like other insects.

Scolopendra phosphorea. The Burmese call it "the wizard centipede." It phosphoresces when wounded.

KIN-SONE. The species is very common. The natives informed me that it is very fond of entering into the ears of people sleeping and producing deafness, from the intolerable pain, and soon after death itself.

CRUSTACEOLOGY.

The crustaceous animals of Pegu—like those found in other countries—have a covering of a crusty kind of shell with which they are sustained and defended.

Astacus is the cray fish. Its voraciousness almost exceed our credibility. It seems among crustaceans what the vulture is among birds, indeed, I think it is more voracious, as it even devours each other, and to increase our astonishment still more, I have been assured by the native fishermen that it sometimes gorges on itself. The Pegu species grows to a large size, and is most in repute for its food. We have also two smaller kinds designated *Pa-zoon* and *Pa-zoon-saka* by the Burmese. The first inhabits our rivers in abundance; the flesh is excellent. The last named is the smallest of the species represented, and is always seen in our bazars. It is the common food of the lower order of the people.

PA-ZOON YAI-JOE.

Gammarus is the prawn fish which swims
the sweet water.

LAI-PA-ZOON.

Gecarcinian lives chiefly on land and mi-
grates at times to the river.

Pagurus like a monk putting on indifferently his cowl, contents
itself with getting into the univalve cast-off shells of other insects.

Cancer is common about the sea shore and has large nippers
with which it pinches most terribly whatever
it happens to fasten upon. The natives, when
carrying it for sale to the bazars, take the

KA-NAN.

precaution of tying its claws.

The Barnacle is found about the sea coast. An adult of this
species was brought to me by an intelligent

KHA-YIN.

Burman, it had much the appearance of a
mollusk; indeed, I had great difficulty in
discovering its true relation, but on investigating the embryo, the
specks fell from my eyes, and to my delight, I soon found that it had
all the aspect of the ordinary crustacean.

THE END.

